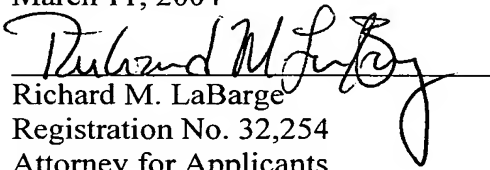




28159/39798

UNITED STATES PATENT AND TRADEMARK OFFICE

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For: CONSTRUCTIONAL ELEMENT,	)	mail, postage prepaid, in an envelope
BUILDING SYSTEM AND METHOD	)	addressed to: Commissioner for
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Group Art Unit: Unassigned	)	March 11, 2004
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	)	Richard M. LaBarge
	)	Registration No. 32,254
	)	Attorney for Applicants

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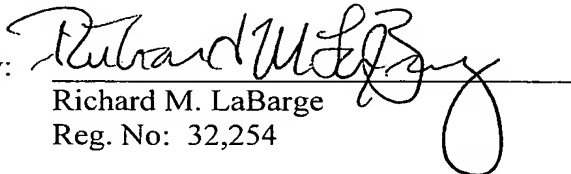
Enclosed herewith is a certified copy of Australian Application No. 2002953392, filed December 17, 2002, upon which priority of the instant application is claimed under 35 U.S.C. 119.

March 11, 2004

Respectfully submitted,

MARSHALL, GERSTEIN & BORUN LLP  
6300 Sears Tower  
233 South Wacker Drive  
Chicago, Illinois 60606-6402  
(312) 474-6300

By:

  
Richard M. LaBarge  
Reg. No: 32,254

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I, JONNE YABSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2003900596 for a patent by JETSTONE BUILDING SYSTEMS PTY LTD as filed on 11 February 2003.

WITNESS my hand this  
Sixteenth day of December 2003



*J R Yabsley*

JONNE YABSLEY  
TEAM LEADER EXAMINATION  
SUPPORT AND SALES



AUSTRALIA  
Patents Act 1990

PROVISIONAL SPECIFICATION

Applicant(s):

JETSTONE BUILDING SYSTEMS PTY LTD

Invention Title:

CONSTRUCTION ELEMENT

The invention is described in the following statement:

- 2 -

## IMPROVED BUILDING SYSTEM

## FIELD OF THE INVENTION

The present invention relates to building systems,  
5 constructional elements and methods of construction.

## DESCRIPTION OF THE PRIOR ART

Building systems in the form of prefabricated modular  
building systems have a tendency to rely upon heavy  
10 machinery for their construction, are generally labour  
intensive requiring many different tradesmen and, although  
being modular, require the separate construction and  
application of external and internal finishes. An example  
of components of a prefabricated modular building system  
15 is aluminium cladding. Such cladding is typically  
positioned and fixedly located on the exterior of a fibre  
panel or wood panel building structure.

Another example of modular elements for buildings  
includes a system comprising end posts and concrete slabs  
20 attached therebetween. These slabs may then be rendered  
or coated as necessary once the building is constructed.

## SUMMARY OF THE INVENTION

According to one aspect of the invention, there is  
25 provided a building system for securing a plurality of  
adjacent constructional elements to form a wall, the  
system including:

at least two opposed posts positioned in use to  
define a space therebetween and adapted to secure  
30 respective ends of the elements, such that element ends  
are communicable with each other through the space.

Advantageously, the configuration of the invention  
allows for an improved and simplified system of

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construction. It also allows for improved location and interaction of utilities, such as electrical wiring, water supply via conduits, etc, from one constructional element to another through the space, and allows for the location and access of such utilities within a space within a constructional element.

The building system according to the present invention has been designed for use with constructional elements as described in the Applicant's co-pending International Patent Application No. WO 02/35026, however it will be appreciated by a person skilled in the art that it may be adapted for use with other applicable constructional elements.

Preferably, the system includes a base at which an end portion of each of the posts can be located. Also preferably, the base includes an upstanding spacer on outer or inner sides of which the posts are mounted to define the space therebetween. Preferably each post includes a central channel extending along at least part of its length, typically at least at its end portion. Preferably the spacer includes a projection which is complementary to the central channel of the respective end portions of the posts.

Preferably the system allows the formation of two or more walls extending from the posts. Such walls may be linearly aligned, orthogonal, or acute/obtuse to each other.

In one embodiment, the system includes three posts allowing a junction of three walls extending therefrom. In another embodiment, the system includes four posts allowing a junction of four walls extending therefrom.

Preferably the constructional element includes:  
a structural member;

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cladding formed about the structural member such that at least one end of the structural member protrudes beyond one part of the cladding perimeter; and

abutment means including protrusion means formed in  
5 and protruding from another part of the cladding perimeter for mutual abutment and alignment with abutment means on an adjacent constructional element;

wherein the at least one end is adapted for location between two of the posts.

10 Also preferably, the constructional element includes:  
a rectangular structural member;

cladding for covering the structural member and  
extending around sides and edges of the structural member  
such that at least one end of the structural member  
15 protrudes beyond the edge of the cladding at the sides and  
edges of the structural member; and

abutment means including protrusion means formed in  
and protruding from the cladding adjacent to an edge of  
the structural member for mutual abutment and alignment  
20 with abutment means on an adjacent constructional element;

wherein the at least one end is adapted for location between two of the posts.

Preferably the structural member is elongate, with  
opposing ends of the structural member protruding beyond  
25 respective opposing ends of the cladding for location  
between two of the posts. Also preferably, the structural  
member is hollow.

Preferably the constructional element includes  
utilities means including a utility service point on the  
30 element in communication with a utility supply conduit  
located within the structural member. The utilities  
services suppliable by the utility supply conduit may  
include any one of the following: electricity;

- 5 -

telecommunications; gas; water; air conditioning; and vacuuming.

According to a second aspect of the invention there is provided a constructional element including:

5 a rectangular structural member;

primary cladding for covering the structural member and extending around sides and edges of the structural member such that at least one end of the structural member protrudes beyond the edge of the cladding at the sides and  
10 edges of the structural member; and

secondary cladding on one or more sides of the primary cladding.

Preferably the secondary cladding is located on opposing sides of the primary cladding. Preferably, the  
15 primary cladding is polymeric and the secondary cladding is glass reinforced concrete. Preferably the element further includes abutment means including protrusion means formed in and protruding from the cladding adjacent to an edge of the structural member for mutual abutment and  
20 alignment with abutment means on an adjacent constructional element.

According to a third aspect of the invention there is provided a constructional element having a front face and  
25 an opposed rear face, the element including:

a structural member; and

cladding formed about the structural member such  
30 that, on the rear face of the constructional element, at least an end portion of the structural member is exposed.

Exposure of the structural element on the rear face of the constructional element allows the constructional



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element to be attached to a framework via the structural member, the framework including support elements.

5 It may be only an end portion of the structural member which is exposed to allow attachment of the structural element to a support element at its end, but preferably the structural member is exposed along the entire length of the rear face of the constructional element.

10

Preferably, the rear face of the constructional element is substantially flat. Preferably, the structural member includes an internal cavity, which may be hollow or filled with an insulating material.

15

Preferably, the structural member is a rectangular box section. Alternatively, the structural member may be a rectangular C-section opening to the rear face of the constructional element and having inwardly turned edge portions exposed. The exposed edge portions can then be used for attachment of the constructional element to a framework support element.

20

Preferably the element further includes abutment means including protrusion means formed in and protruding from another part of the cladding perimeter for mutual abutment and alignment with abutment means on an adjacent constructional element.

25

30 Preferably the protrusion means includes a tongue formed along one cladding edge portion, with the abutment means further including a groove formed along the opposing cladding edge portion, the groove being adapted for receiving the tongue of an adjacent constructional element.

35

Alternatively, the abutment means includes

- 7 -

complimentary step formations, the protrusion means being defined by a protruding step in a respective step formation.

5            Preferably, the structural member is metallic, fibreglass, or carbon fibre. The cladding may be cement, concrete, fibre cement, fibreglass, cellulose, foamed polymeric material, ceramics or polystyrene, or combinations thereof.

10

          In one variation, the structural member can be one of two structural members, wherein the cladding is formed about both of the structural members.

15            According to a fourth aspect of the present invention, there is provided a method of panel or wall construction including:

20            providing a plurality of constructional elements as defined in the third aspect to form the panel or wall by the steps of:

25            mounting the constructional elements alongside one another such that they align, and adjacent constructional elements together form the panel or wall;  
             providing a support element; and

30            attaching each constructional element to the support element by attaching the exposed structural element at the rear face of the constructional element to the support element.

35            In one embodiment, the support element comprises a timber post and the constructional elements are attached to the timber post by means of fixing elements.

          In another embodiment, the support element is a

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hollow metallic element such as a C-section and the constructional element is directly fixed to the support element.

5           In yet another embodiment the support element is a metallic post having one or more webs/flanges to which the structural element can be directly fixed.

10           According to a fifth aspect of the present invention, a building system is provided that includes:

          a plurality of spaced apart support elements;

15           a plurality of constructional elements as defined in the third aspect, wherein the constructional elements are attachable to the support elements by attachment of the exposed portions of the structural elements to the support elements, and wherein the constructional elements are

20

          In one embodiment, at least one of the support elements comprises a T-section. Also, at least one of the structural elements is a star section having three projecting flanges.

25

#### BRIEF DESCRIPTION OF THE DRAWINGS

          Preferred embodiments of the invention will now be described, by way of example only, with reference to the accompanying drawings in which:

30           Figures 1 and 3 are perspective views of a portion of a building system according to the present invention;

          Figure 1a is a plan view of a base;

          Figure 2 is a perspective view of the building system of Figure 1, with a post removed to reveal the space;

35           Figures 4 and 6 are perspective views of a corner of the building system;

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Figure 5 is a reverse perspective view of the corner of Figure 4 with a post removed to reveal the space;

Figure 6a is a perspective view of a spacer for use with the building system;

5        Figures 7 and 8 are perspective views of a wall junction of the building system;

Figure 9 is a perspective view of another wall junction;

10       Figure 9a is a perspective view of another spacer for use with the building system;

Figure 10 is another perspective view of a portion of the building system;

Figure 11 is a perspective view of an alternative embodiment of the building system;

15       Figures 12, 13 , and 15 to 17 are perspective views of variations of a board for use with the present invention;

Figure 14 is a detailed perspective view of the board of Figure 13;

20       Figure 18 is a side elevation of a wall according to the present invention;

Figure 19 is an exploded perspective view of an alternative embodiment of boards employed as louvres, illustrated in a closed position;

25       Figure 20 is a partial perspective view of the boards as louvres illustrated in Figure 19 in a closed position; and

Figure 21 is a partial cutaway perspective view of the building system of the present invention.

30

Figures 22 to 29 illustrate various embodiments of a building system in accordance with a further aspect of the present invention.

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In the Figures, like reference numerals denote like parts.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The description in the Applicant's co-pending  
5 International Patent Application No. WO02/35026 is incorporated herein by reference.

Referring to the Figures 1 to 11 and 21, a preferred embodiment of the invention is a building system for securing a plurality of adjacent constructional members in  
10 the form of boards 10 in the form of a wall 12. The wall 12 may be a sidewall, floor, roof, ceiling, etc. The building system may be employed for forming a single room, garden shed, retaining wall, garden feature wall, or multi-room/multi-level house, for example. Also, the  
15 building system may be used in combination with other building systems. For example, when building a multi-room dwelling, the building system of the present invention may be used to form external walls only, while a conventional building system may be used to form internal walls.

20 The board 10 is typically in the form described in PCT/AU01/01375, including a rectangular structural member in the form of an elongate hollow box core 14, and cladding 16 about the core. Ends 18 of the core 14 of the board extend beyond respective ends 20 of the cladding  
25 16.

At least two opposed posts 22 are positioned in use to define a space 24 therebetween. The opposed posts 22 are adapted to secure respective ends 18 of the boards 10 in the form of a wall and such that ends 18 of the boards  
30 10 are communicable with each other through the space 24. For example, in Figure 2 one of the opposed posts 22 has been removed to reveal the space 24 between the posts 22. Utilities in the form of telecommunication and electrical

- 11 -

wires 26 can be seen to pass through the space 24 from an end 28 of one board 30 to adjacent end 32 of a second board 34. It is in this manner that ends 18 of the boards 10 are communicable with each other through the space 24.

5        These utilities may then be accessed, for example, through the cladding 16 of a board 10. For example, as illustrated in Figure 7, an electrical point 35 is located on a board 10, the point 35 being in communication with the wiring 26 within the board 10.

10       Furthermore, it will be apparent to those skilled in the art that this communication is not limited to adjacent ends 18 of boards in series, such as boards 30 and 34 illustrated in Figure 2, but that any one of the boards 10 within the space 24 may communicate through the space 24  
15       with any other boards whose ends 18 are in the space 24. Also, if the building system is employed to form a multi-level house for example, electrical wiring may run from a ceiling, and down through the space 24 and then through any one of the boards 10 whose ends 18 are in  
20       communication with the space 24. This would allow, say, for a light in the ceiling to be easily wired and connected to a light switch on a board 10. Other examples of utilities which may be supplied through the boards 10 and the space 24 also include air conditioning (hot or  
25       cold), vacuum supply, gas supply and water.

      In the preferred embodiment of the building system, there are three forms of the posts 22. The form of post used depends on the type of wall 12 or wall junction to be formed by the posts 22. The first type of post 22 is a  
30       straight post 36, as illustrated in Figures 1, 2, 3, 7, 8 and 10. The second type of post 22 is a small angle post 38, as illustrated in Figures 4 to 9. The third type of post 22 is a large angle post 40, as illustrated in

- 12 -

Figures 4 and 6.

The posts 22 are usually rolled or folded from 2-5mm thick steel plate, though may be formed from other plate material and thicknesses, depending on the application.

5 As illustrated for example in Figure 1, the straight post 36 is employed with another straight post 36 to allow the formation of two walls 12 extending from the posts 36, where the walls 12 are on a mutual plane. As illustrated for example in Figure 7, two small angle posts 38 may be  
10 used in combination with a straight post 36 to form a junction of two walls on a mutual plane and a third wall extending perpendicularly from the two walls.

Alternatively, as illustrated for example in Figure 9, four small angle posts 38 may be used to form a junction  
15 of four walls extending from the posts 38 at right angles from each other. Or, one small angle posts 38 may be used in combination with one large angle post 40 to form a junction of two walls extending from the posts at right angles to each other. In alternative embodiments of forms  
20 of the post (not shown), other wall junctions may be formed, for example allowing walls to join at different angles with respect to each other.

The building system preferably includes a base 42 at which an end portion 44 of each of the posts 22 can be  
25 located. As illustrated for example in Figure 6, the base includes a mounting plate 46, for mounting to a foundation pillar 48 by attachment devices in the form of bolts 50. The base 42 includes an upstanding spacer 52, the outer sides to which the posts 22 are mounted to define the  
30 space 24 between the posts 22. The spacer 52 is usually spot welded to the base plate 46. The spacer 52 usually includes a large portion 54 and one or more small portions 56, depending on the type of wall junction it is used

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with. For example, when used in a junction of two perpendicular walls extending from a single large angle post 40 and a single small angle post 38, as illustrated in Figure 6, the spacer includes the large portion 54 with two small portions 56 disposed at 90° with respect to each other about the large portion 54. Alternatively, when used in a junction of two walls in a mutual plane extending from a pair of opposed straight posts 36, as illustrated in Figure 1, the spacer includes the large portion 54 with two small portions 56 disposed in line with the large portion 54. When used in a junction of three walls, two in a mutual plane, and the third wall extending perpendicularly therefrom, as illustrated in Figure 7, the spacer includes the large portion 54 with three small portions 56, where two small portions 56 are disposed in line with the large portion 54, and the third small portion 56 is disposed at 90° with respect to the line between the other two small portions 56. Lastly, when used in a junction of four walls, as illustrated in Figure 9, the spacer includes the large portion 54 with four small portions 56, disposed at 90° with respect to each other about the large portion 54. As illustrated in Figure 6, the spacer may also be employed separate from the mounting plate 46 in a different location in the space 24 to aid in defining the space 24 along the length of the posts 22. For this reason, the spacer 52 is hollow so as not to interrupt communication through the space 24. In an alternative embodiment, the spacer only includes the large portion 54.

30 In another alternative embodiment of the invention, illustrated in Figure 11, additional caps 57a and 57b are used to further secure the posts 22 about the spacer. The caps 57a and 57b are usually screw-attached to respective



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posts 22. In the embodiment of the caps 57a and 57b illustrated in Figure 11, a separate base plate 46 is not required, as it is in two parts 46a and 46b, each part being integral with caps 57a and 57b respectively. In  
5 another form (not shown) the caps are separate to the base plate 46. When caps are employed, it is usually not necessary to use the small portions 56 of the spacer 52. Also, the use of caps 57a and 57b can replace spacer 52, with the caps then co-operatively functioning as the  
10 spacer.

Each post 22 includes a central channel 58, preferably along its entire length, though in alternative embodiments the channel may be along part of its post's length. The channel 58 both increases the rigidity of the  
15 posts 22 along their length and is complementary to the relative part of the spacer 52 to which the post 22 abuts in use.

In use, the building system may include load bearing beams 60 for supporting a preformed floor 61 or ceiling.  
20 Alternatively, the beams 60 may support a floor or ceiling formed from boards 10. The beams are usually c-section beams, though may be in other forms. As illustrated in Figure 6, the beams 60 may extend either from the posts 22 or from another beam 60.

25 Alternatively, as illustrated in Figure 10, the pillar 48, base 42 and end portions 44 of the posts 22 may be located below ground level, in a ground 65, the ground being either natural or in-filled. The floor 61 may then be laid on the ground, with the option of using an  
30 expansion joint 67 between the floor 61 and the posts 22 and boards 10.

The boards 10 are usually secured to the posts 22 by self-tapping screws 63. The core 14 of the boards 10

- 15 -

ideally has two internal ribs 62 along the length of the core 14 to define a utilities hollow 64 and two void hollows 66 within the core 14. As illustrated in Figure 1, for example, utilities, such as electrical cabling are located in the utilities hollow 64. Since the boards 10 are secured to the posts 22 on a section of the core 14 corresponding to the void hollows 66, the potential for the screws to damage or obstruct installation of the utilities in the board 10 is removed. As will be appreciated by those skilled in the art, whereas having two internal ribs 62 within the core 14 is ideal, it is not essential to the working of the invention.

The part-formed walls illustrated in Figures 2 and 6 show how the boards 10 may be further clad by sheet cladding 68, covering the entire wall surface. Alternatively, each individual board 10 may have preformed secondary cladding 70, as illustrated in Figures 12 to 14. This is particularly useful when the board 10 is used to form an internal wall, where it is not necessary to singularly clad the structural member 14 in a heavy material, such as glass reinforced concrete (GRC) typically suited for an external wall having a surface exposed to natural elements such as sun, rain, etc. Therefore, when merely used to form an internal wall, the board 10 may be clad in primary cladding 72 of a lighter, less durable material such as polystyrene or wood-pulp based material, for example. This primary cladding may then be clad by secondary cladding 70 of GYPROC<sup>®</sup>, or another appropriate material such as GRC. This variation on board manufacture aids in reduction of weight and cost of the board 10. Furthermore, depending on the use of the board 10, it may only require secondary cladding 70 on one side, as illustrated in Figure 12.

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Alternatively, as illustrated in Figure 15, the structural member may only be clad about three of its four sides, depending on the requirement for the end use of the board 10. Furthermore, as illustrated in Figures 16, 17 and 18, recesses 74 may be formed in the cladding to expose a portion of the structural member 14 for easier attachment thereto of a brace member 76. As illustrated in Figure 17, the brace member 76 may be employed for connection of a board 10 mid-way along another board. For example, this may be necessary if a perpendicular wall is required at a location away from the posts 22.

Figures 19 and 20 illustrate an embodiment of the board 10 adapted for use as louvres. In this embodiment, the board 10 has abutment means in shiplap form 78. Louvre connection devices 80 are connected to ends 18 of respective boards 10 to allow a standard louvre operation, the connection devices 80 being rotatably mounted to posts by protrusions 82 on the connection devices 80. Movement arms 84 extend from the connection devices 80 for attachment to an operating arm (not shown) to allow manual opening and closing of the louvres.

Now that the preferred embodiments of the invention have been described, it will be apparent to those skilled in the art that the improved building system has at least the following advantages:

- 1 It allows for easier access and deployment of utilities;
- 2 The post configuration is lighter than present methods; and
- 3 The post configuration is cheaper to manufacture than present methods.

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Figures 22 to 29 illustrate embodiments of a building system for securing a plurality of constructional elements in the form of boards 10 to form a panel or wall. In the embodiments of Figures 22 to 28, each board 10 includes structural members in the form of two hollow closed section cores 101, which are covered on three faces of the board 10 by cladding 100. On the three fully clad faces of the board 10, the cladding 100 extends to the ends of the cores 101. On the rear face of the board, at least a portion of the cores 101 are exposed, the exposed portion of each core 101 being at least a portion adjacent to an ends of the board 10. The board 10 may be fixed to a frame by means of attachment to the exposed portions of the cores 101 at the rear face of the board 10.

15

Figures 22 and 23 illustrates embodiments for attachment to a timber frame including support elements in the form of timber posts 102. In the embodiment of Figures 22 and 23, the boards 10 are only clad on three faces such that the cores 101 are exposed along their entire lengths at the rear face of the board 10.

In the embodiment of Figure 22, a fixing channel 103 is screwed to the exposed rear face of a one of the cores 101, and a fixing channel 104 is screwed to the posts 102. A downward facing flange 103a of fixing channel 103 slots behind an upward facing flange 104a of fixing channel 104. To construct a wall or panel, the boards 10 are slotted into position starting at the bottom of the wall or panel. The boards 10 typically also include abutment means in the form of tongue and groove edge sections on adjacent boards which interlock.

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In the embodiment of Figure 23, the boards are fixed to timber posts 102 by means of L shaped fixing clips 105 which are screwed to both the timber posts and the exposed rear surface of core 101.

5

If a metal frame including hollow metal sections is used, as shown in Figure 24, the boards may be fixed directly to upright posts 102 which, in this embodiment, comprise metal C-sections. Self-tapping screws 110 fix the  
10 C-sections into the exposed rear face of the core 101.

Figures 25 and 26 illustrate embodiments of the building system including connecting members 106 for joining ends of adjacent boards to form corners as shown  
15 in Figure 25 or to join boards end to end as shown in Figure 26. Figure 25 illustrates a corner junction in which a star shaped metal section 106 having three projecting flanges is used. Abutting boards 10 are fixed to two of the projecting flanges 106a, 106b and the third  
20 flange 106c projects between the end faces of the abutting boards 10. In Figure 26, a T section 106 is used to connect two boards 10 in a line.

Advantageously in the embodiment of Figures 25 and 26  
25 no quoins or covers are required at the joints or corners.

Figure 27 shows an arrangement of boards around a window frame 200.

In the embodiment of Figure 28, only the end portions  
30 107 of the cores 101 are exposed on the rear face of the board 10 where they are attached to the T shaped or star shaped connecting members 106.

- 19 -

Figure 29 illustrates an embodiment in which the core 101 is a C-section rather than a rectangular box section as shown in Figures 22 to 28. The board 10 is attached to a metal or timber post by fixing to inward facing edge portions 109a, 109b of the C section core 101 which are exposed at the rear face of the board 10.

Advantageously by partially removing at least a portion of the cladding on the rear face of the boards, a strong bond between board and frame can be established, without the need to protrude the core(s) beyond the end of the cladding for fastening.

Although the invention has been described with reference to particular examples, it will be appreciated by those skilled in the art that the invention may be embodied in many other forms.

It is to be understood that any reference to prior art herein does not constitute an admission that the information forms a part of the common general knowledge in the art, in Australia or any other country.

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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. A building system for securing a plurality of adjacent constructional elements to form a wall, the system including:

5           at least two opposed posts positioned in use to define a space therebetween and adapted to secure respective ends of the elements, such that element ends within the space are communicable with each other through the space.

10

2. The system of claim 1 including a base at which an end portion of each of the posts can be located.

3. The system of claim 2 wherein the base includes an  
15 upstanding spacer on outer or inner sides of which the posts are mounted to define the space therebetween.

4. The system of claim 3 wherein each post includes a  
20 central channel extending along at least the end portion of its length.

5. The system of claim 4 wherein the spacer includes a  
projection which is complementary to the central channel of the respective end portions of the posts.

25

6. The system of any one of the preceding claims wherein the system allows the formation of two or more walls extending from the posts.

30 7. The system of any one of the preceding claims including three posts allowing a junction of three walls extending therefrom.

- 21 -

8. The system of any one of the preceding claims including four posts allowing a junction of four walls extending therefrom.

5 9. The system of any one of the preceding claims wherein the constructional element includes:

- a structural member;
- cladding formed about the structural member such that at least one end of the structural member protrudes beyond
- 10 one part of the cladding perimeter; and
- abutment means including protrusion means formed in and protruding from another part of the cladding perimeter for mutual abutment and alignment with abutment means on an adjacent constructional element;

15 wherein the at least one end is adapted for location between two of the posts.

10. The system of any one of claims 1 to 8 wherein the constructional element includes:

- 20 - a rectangular structural member;
- cladding for covering the structural member and extending around sides and edges of the structural member such that at least one end of the structural member protrudes beyond the edge of the cladding at the sides and
- 25 edges of the structural member; and
- abutment means including protrusion means formed in and protruding from the cladding adjacent to an edge of the structural member for mutual abutment and alignment with abutment means on an adjacent constructional element;

30 wherein the at least one end is adapted for location between two of the posts.



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11. The system of claim 9 or claim 10 wherein the structural member is elongate, with opposing ends of the structural member protruding beyond respective opposing ends of the cladding for location between two of the posts.

12. The system of any one of claims 9 to 11 wherein the structural member is hollow.

13. The system of claim 12 wherein the constructional element includes utilities means including a utility service point on the element in communication with a utility supply conduit located within the structural member.

14. The system of claim 13 wherein the utilities services includes any one of the following: electricity; telecommunications; gas; water; air conditioning; and vacuuming.

15. A constructional element including:  
a rectangular structural member;  
primary cladding for covering the structural member and extending around sides and edges of the structural member such that at least one end of the structural member protrudes beyond the edge of the cladding at the sides and edges of the structural member; and

secondary cladding on one or more sides of the primary cladding.

16. The constructional element of claim 15 wherein the secondary cladding is located on opposing sides of the primary cladding.

- 23 -

17. The constructional element of claim 15 or claim 16 wherein the primary cladding is polymeric and the secondary cladding is glass reinforced concrete.

5 18. The constructional element of any one of claims 15 to 17 further including abutment means including protrusion means formed in and protruding from the cladding adjacent to an edge of the structural member for mutual abutment and alignment with abutment means on an adjacent  
10 constructional element.

19. A constructional element having a front face and an opposed rear face, the element including:

15 a structural member; and

cladding formed about the structural member such that, on the rear face of the constructional element, at least an end portion of the structural member is exposed.

20

20. A constructional element according to claim 19, wherein only an end portion of the structural member is exposed on the rear face to allow attachment of the structural element to a support element at its end.

25

21. A constructional element according to claim 19, wherein the structural member is exposed along the entire length of the rear face of the constructional element.

30 22. A constructional element according to claim 21, wherein the rear face of the constructional element is substantially flat.

- 24 -

23. A constructional element according to any one of claims 19 to 22, wherein the cladding on the front face of the constructional element substantially entirely covers the structural member.

5

24. A constructional element according to any one of claims 19 to 23 wherein the structural member includes an internal cavity.

10 25. A constructional element according to claim 24, wherein the structural member is a rectangular box section.

15 26. A constructional element according to claim 24, wherein the structural member is a rectangular C-section opening to the rear face of the constructional element and having inwardly turned edge portions exposed.

20 27. A constructional element according to any one of claims 19 to 26, further including abutment means including protrusion means formed in and protruding from another part of the cladding perimeter for mutual abutment and alignment with abutment means on an adjacent constructional element.

25

28. A constructional element according to claim 27, wherein the protrusion means includes a tongue formed along one cladding edge portion, with the abutment means further including a groove formed along the opposing  
30 cladding edge portion, the groove being adapted for receiving the tongue of an adjacent constructional element.

- 25 -

29. A constructional element according to claim 27, wherein the abutment means includes complimentary step formations, the protrusion means being defined by a protruding step in a respective step formation.

5

30. A constructional element according to any one of claims 19 to 29, wherein the structural member is metallic, fibreglass, or carbon fibre.

10 31. A constructional element according to any one of claims 19 to 30, wherein the cladding is cement, concrete, fibre cement, fibreglass, cellulose, foamed polymeric material, ceramics or polystyrene.

15 32. A constructional element according to any one of claims 19 to 31, wherein the structural member is one of two structural members, wherein the cladding is formed about both of the structural members.

20 33. A method of panel or wall construction including:

providing a plurality of constructional elements according to any one of claims 19 to 32 to form the panel or wall by the steps of:

25

mounting the constructional elements alongside one another such that they align, and adjacent constructional elements together form the panel or wall;

30 providing a support element; and

attaching each constructional element to the support element by attaching the exposed structural element at the

- 26 -

rear face of the constructional element to the support element.

34. A method according to claims 33, wherein the support  
5 element comprises a timber post and the constructional elements are attached to the timber post by means of intermediate fixing elements.

35. A method according to claim 33, wherein the support  
10 element is a hollow metallic element such as a C-section and the constructional element is directly fixed to the support element by means of screw fasteners

36. A building system including:

15

a plurality of spaced apart support elements;

a plurality of constructional elements according to  
any one of claims 19 to 32, wherein the constructional  
20 elements are attachable to the support elements by attachment of the exposed portions of the structural elements to the support elements, and wherein the constructional elements are arrangeable in a side by side relationship.

25

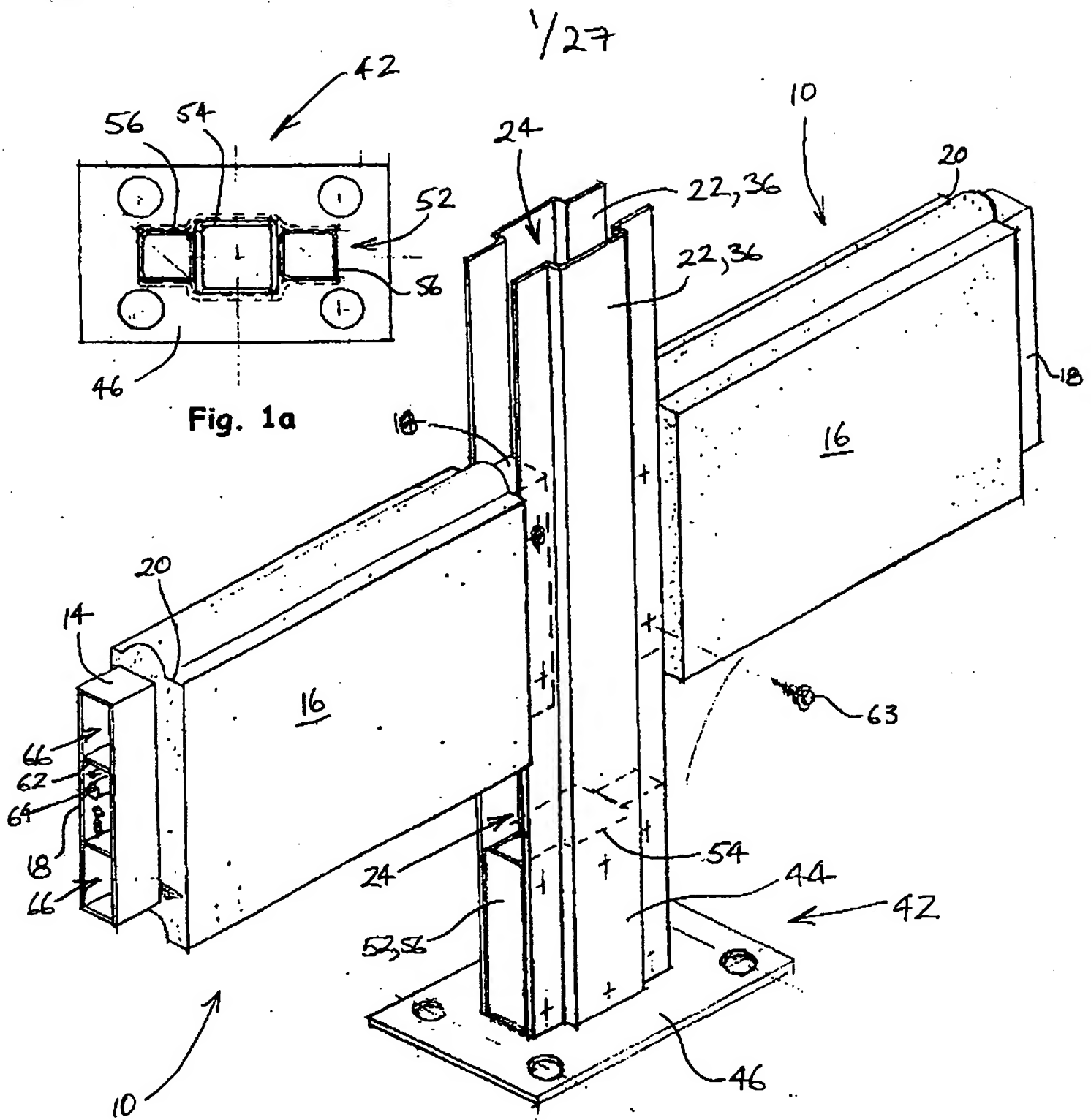
37. A building system according to claim 36, wherein the support element is a metallic post having one or more webs or flanges to which the structural element can be directly fixed.

30

Dated this 11th day of February 2003  
JETSTONE BUILDING SYSTEMS PTY LIMITED

By its Patent Attorneys

GRIFFITH HACK



**Fig. 1**

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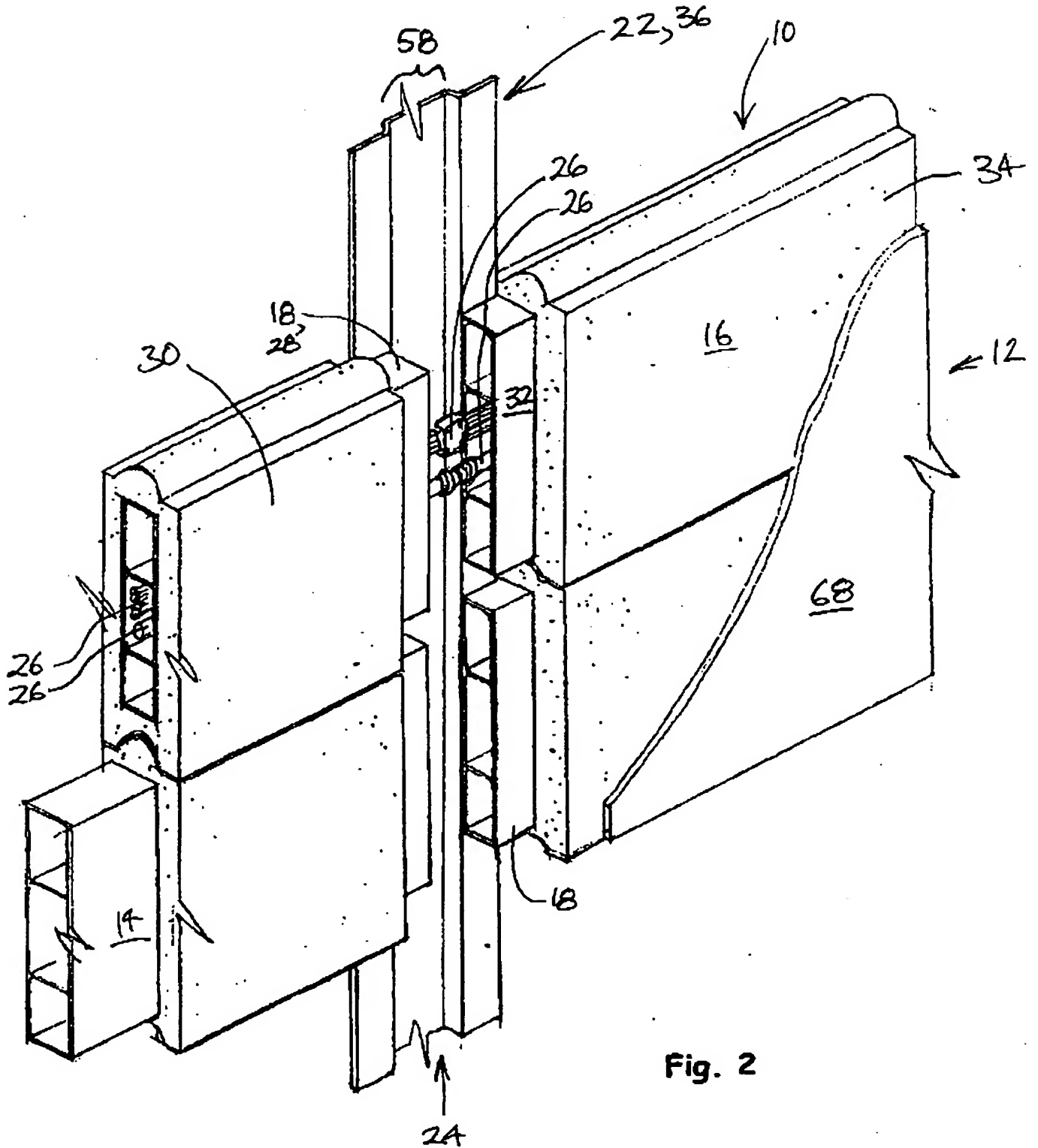


Fig. 2

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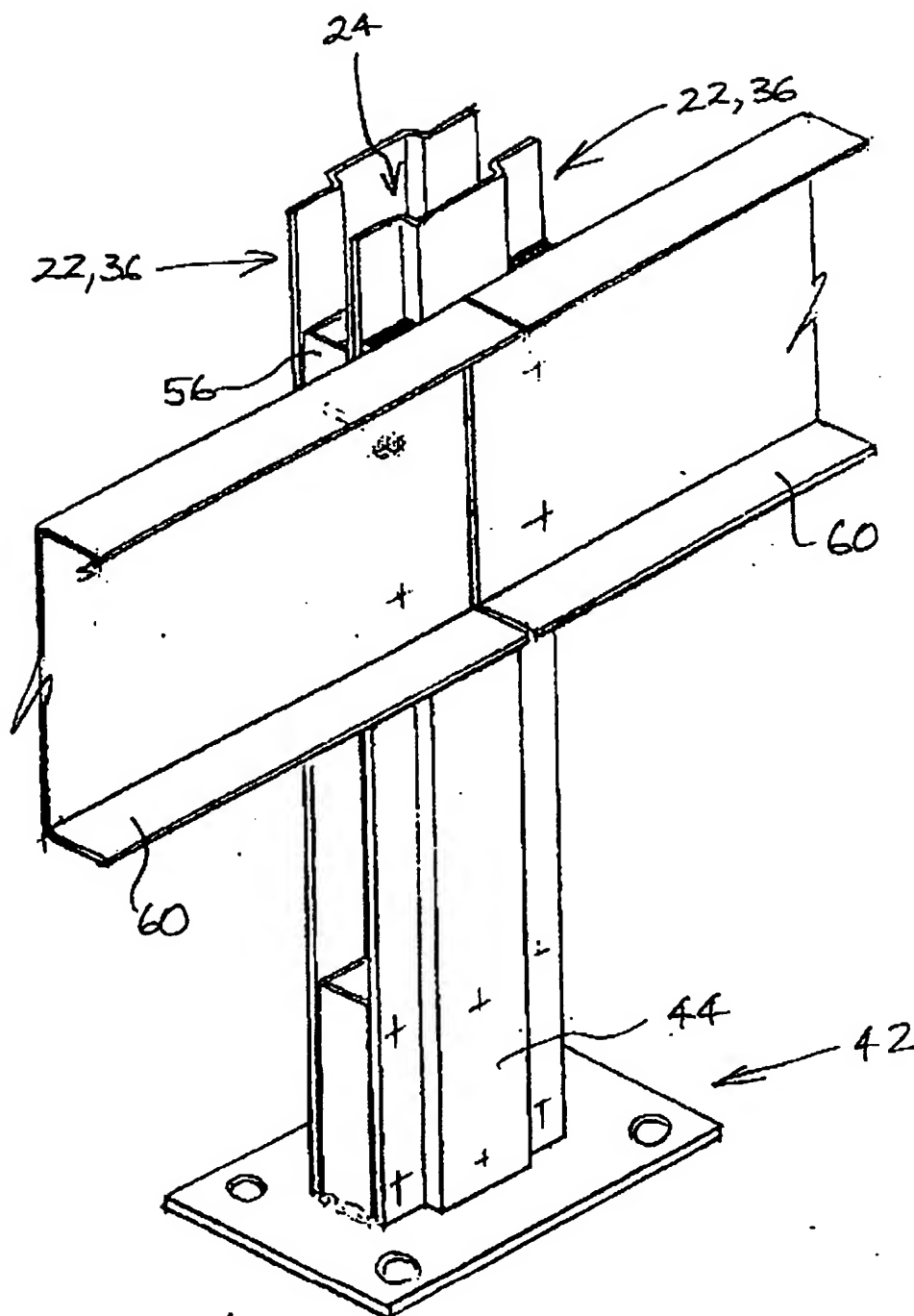


Fig. 3



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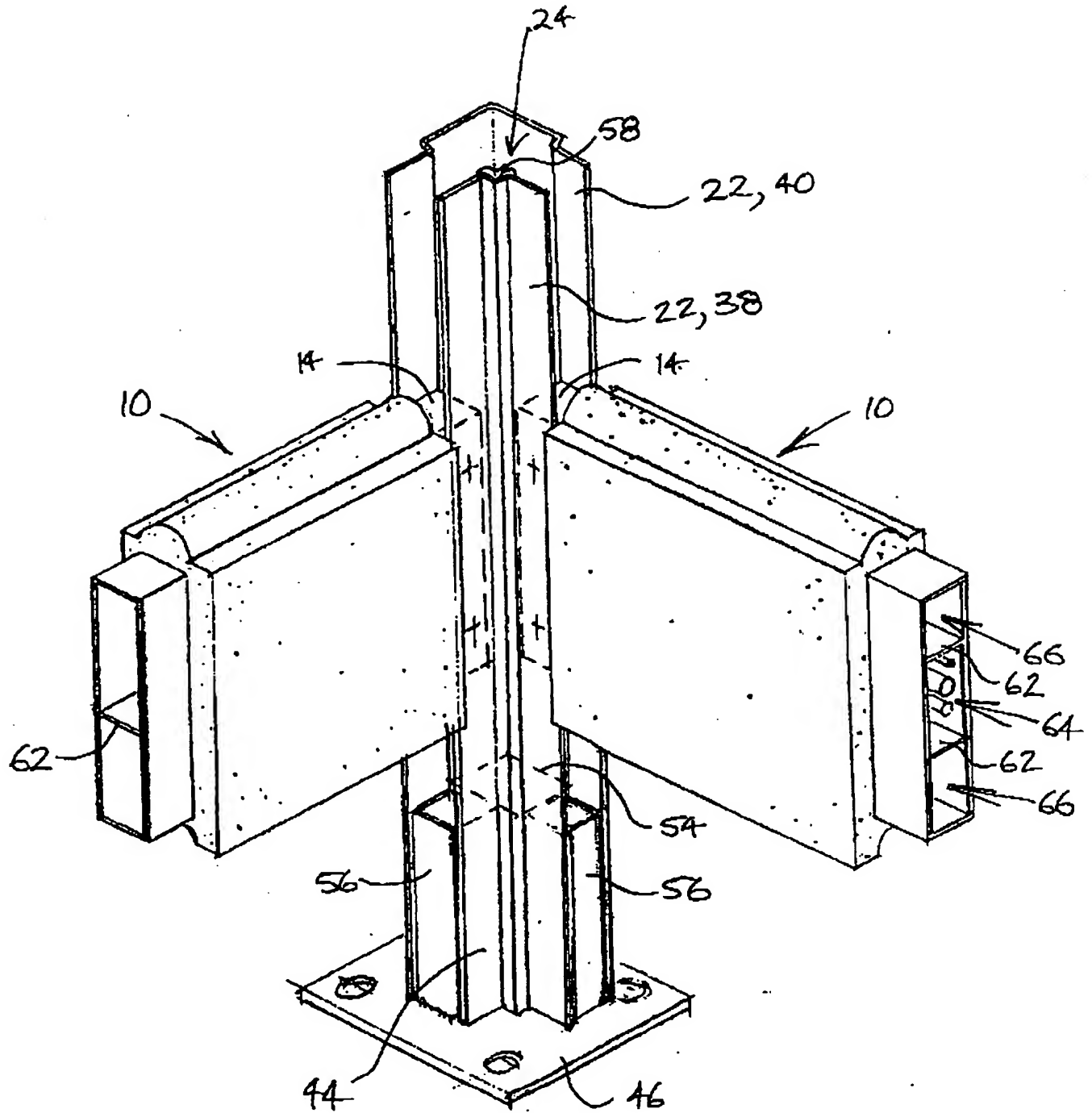


Fig. 4

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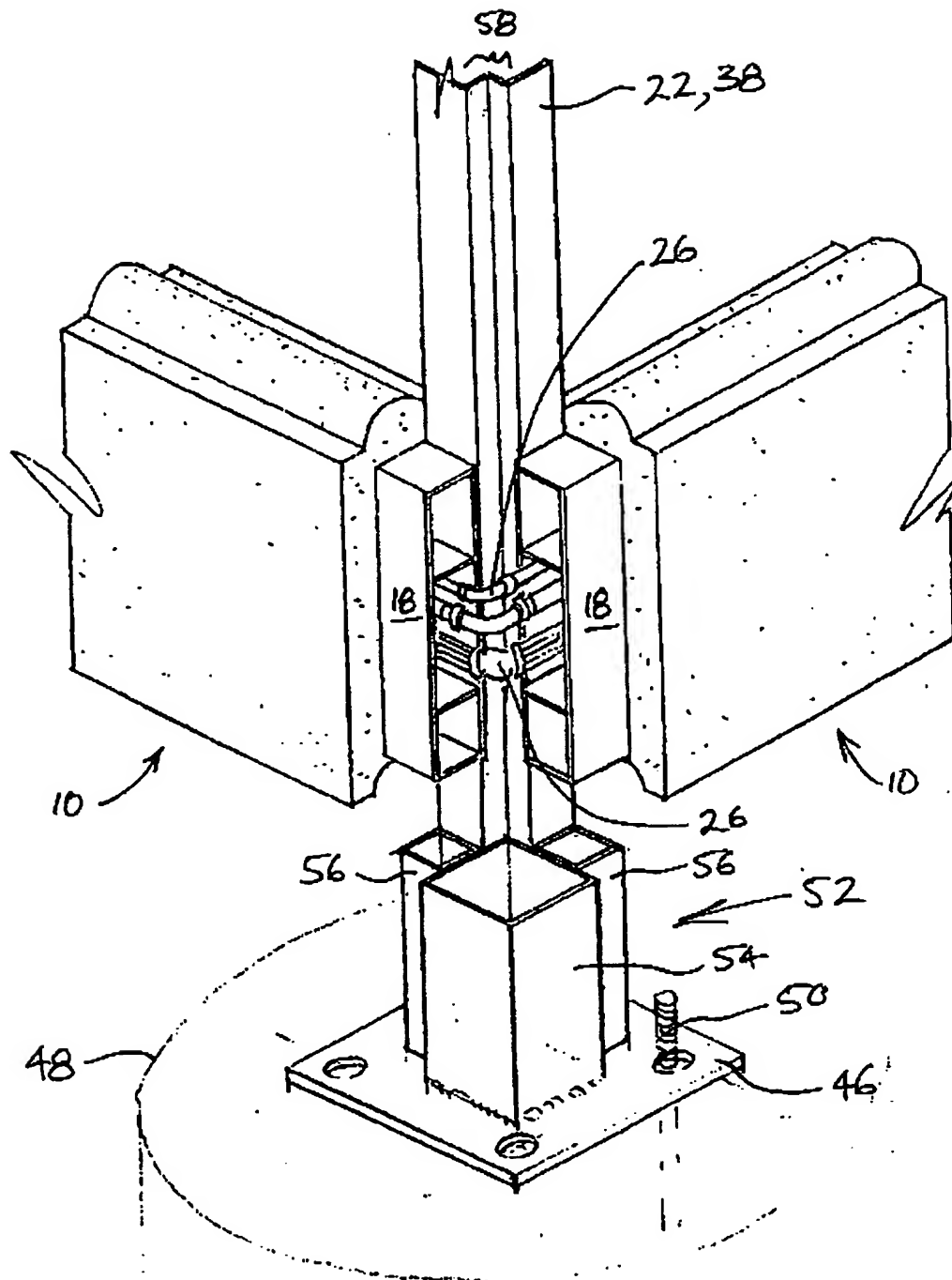
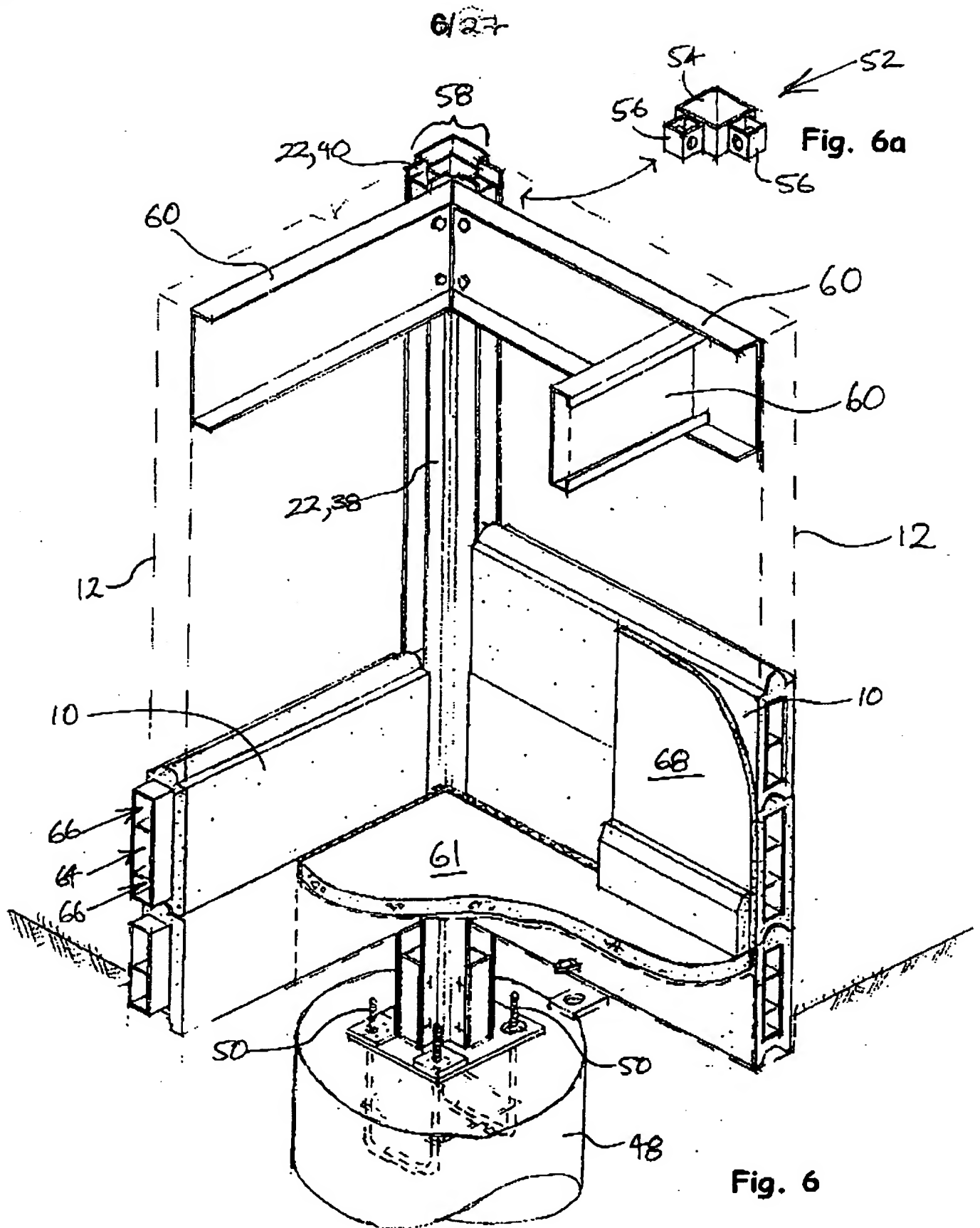


Fig. 5



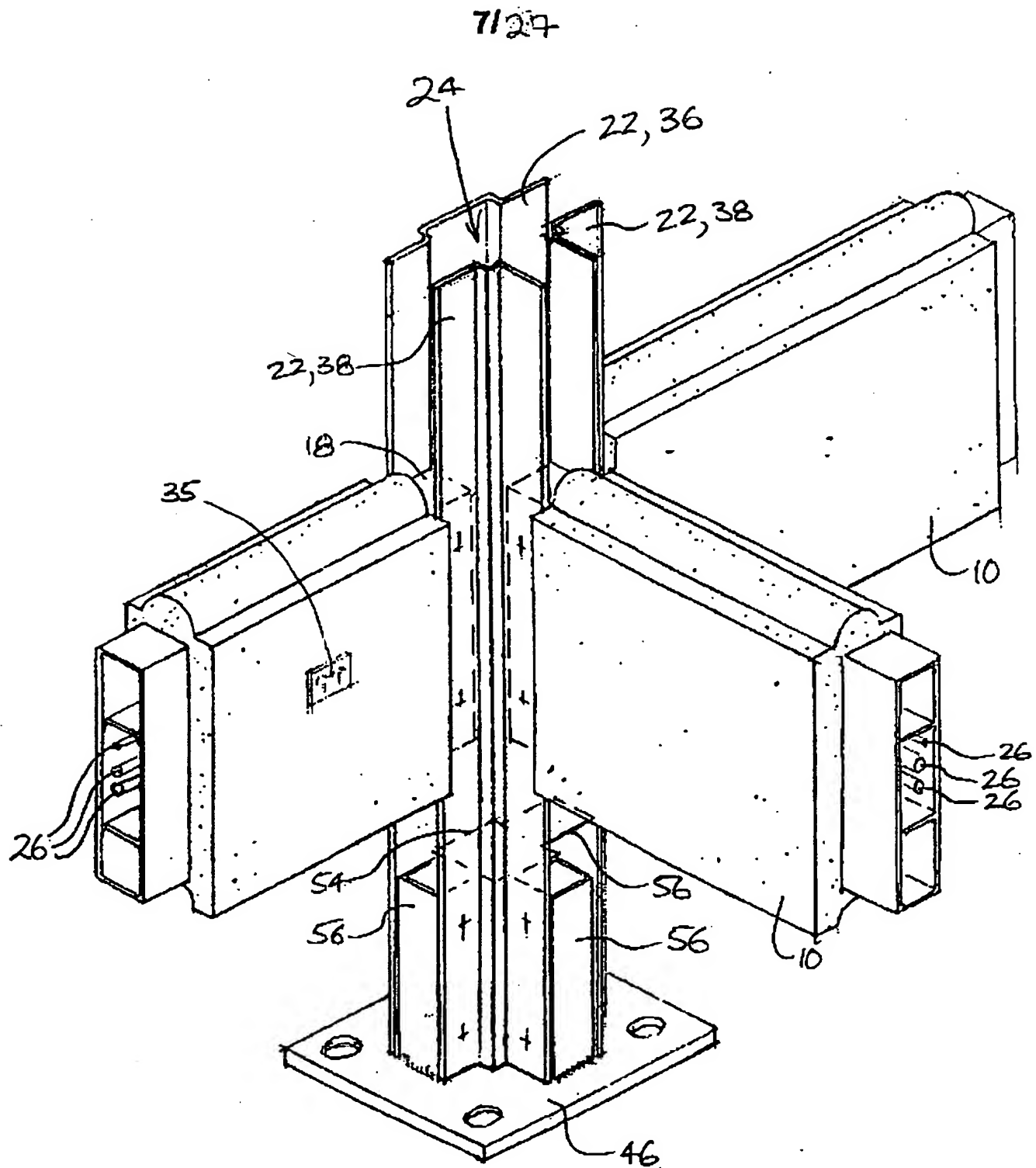


Fig. 7

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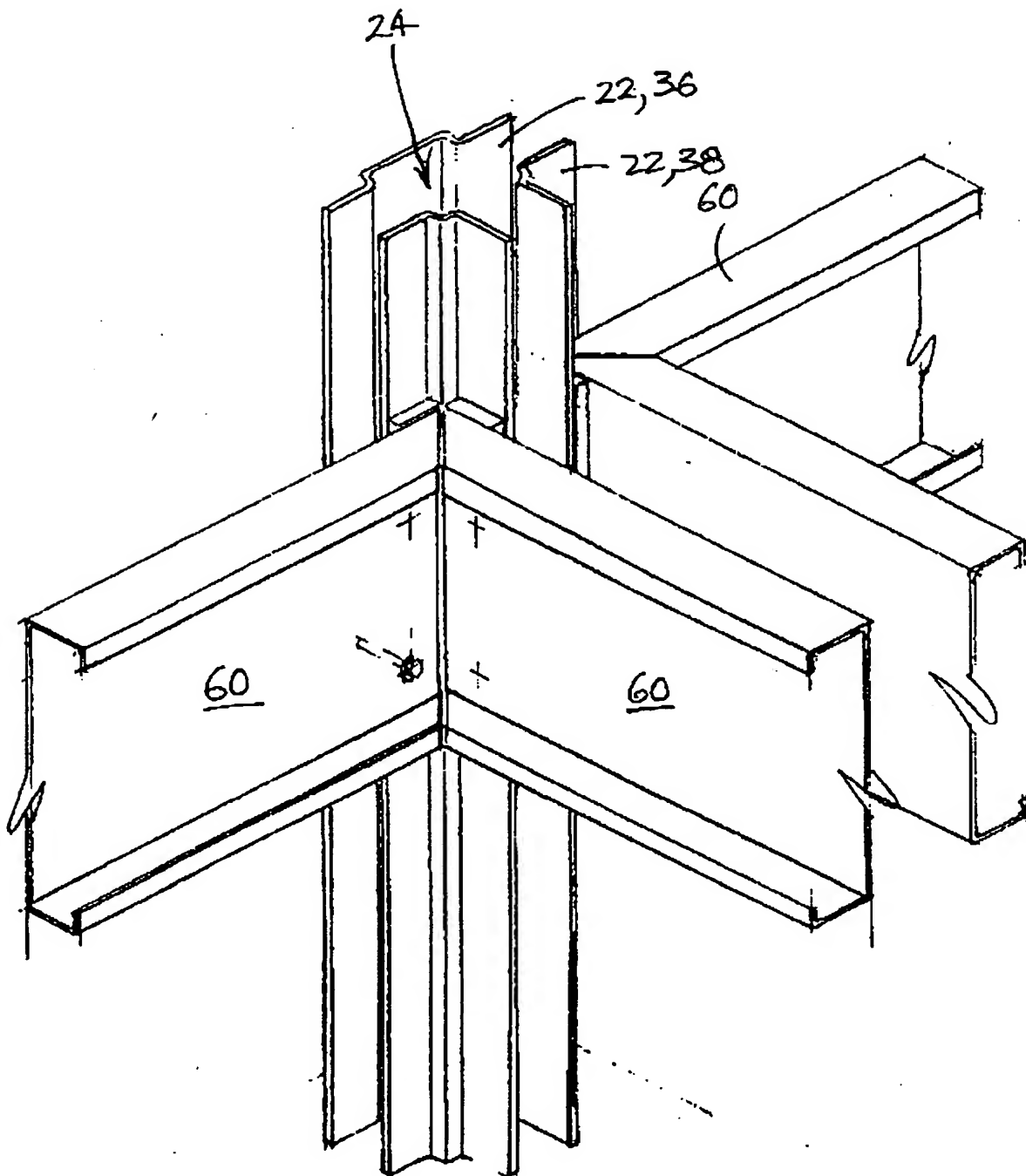
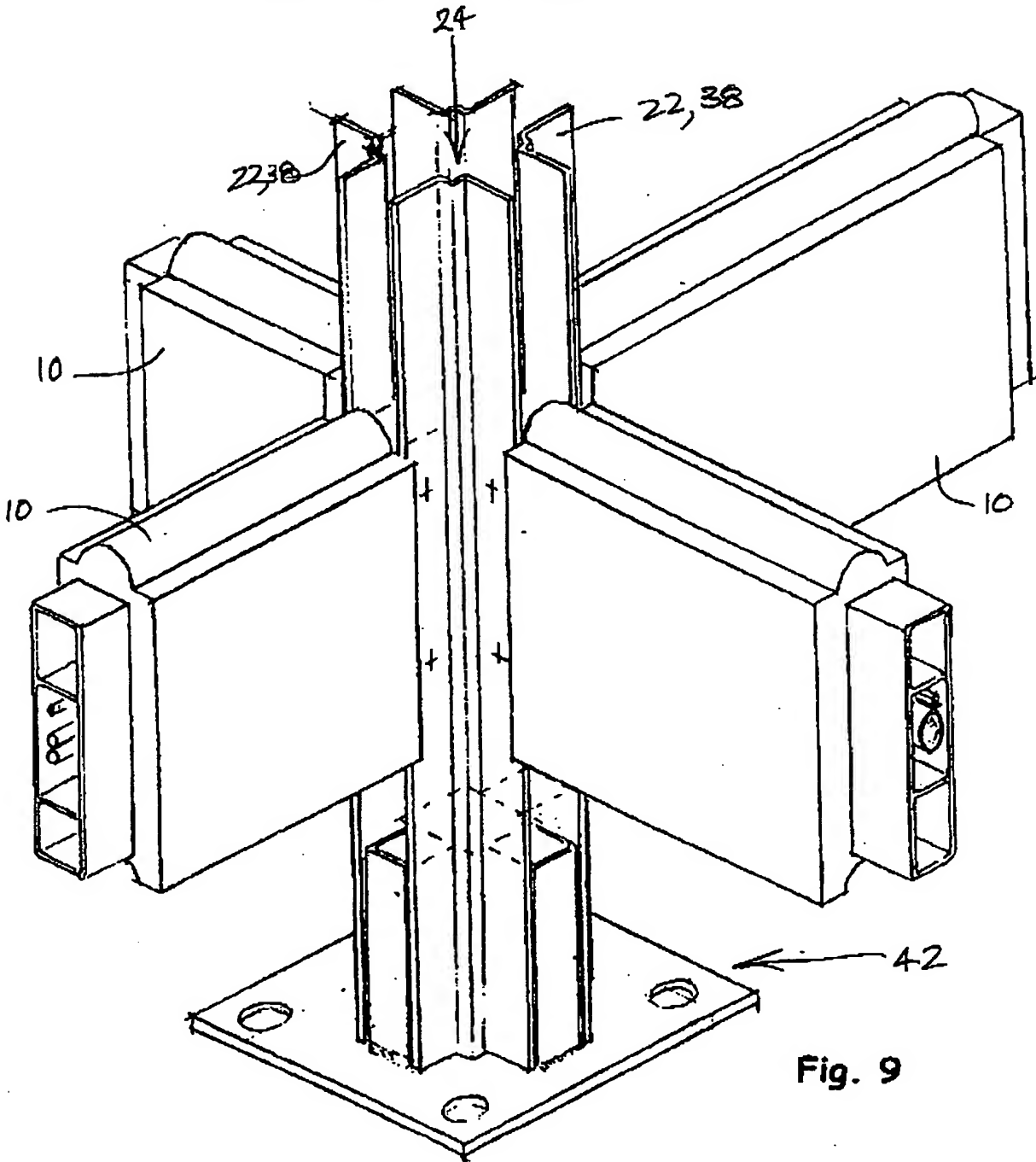
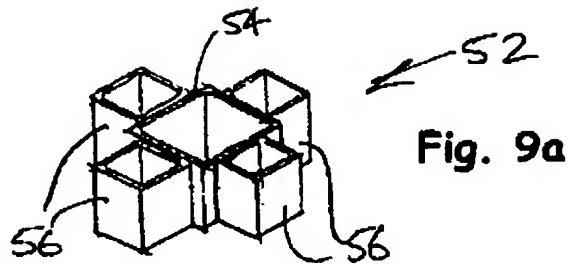


Fig. 8

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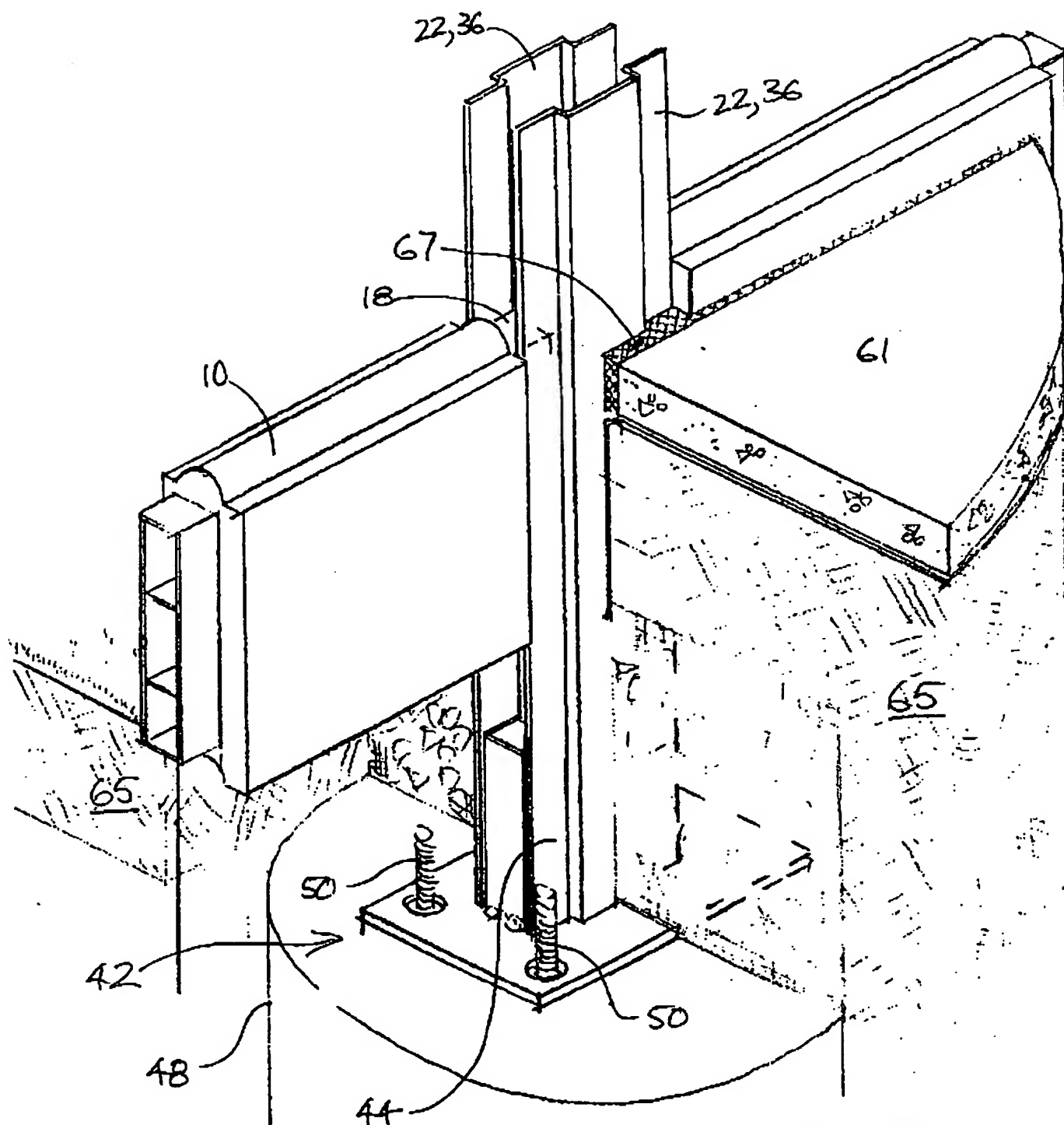


Fig. 10

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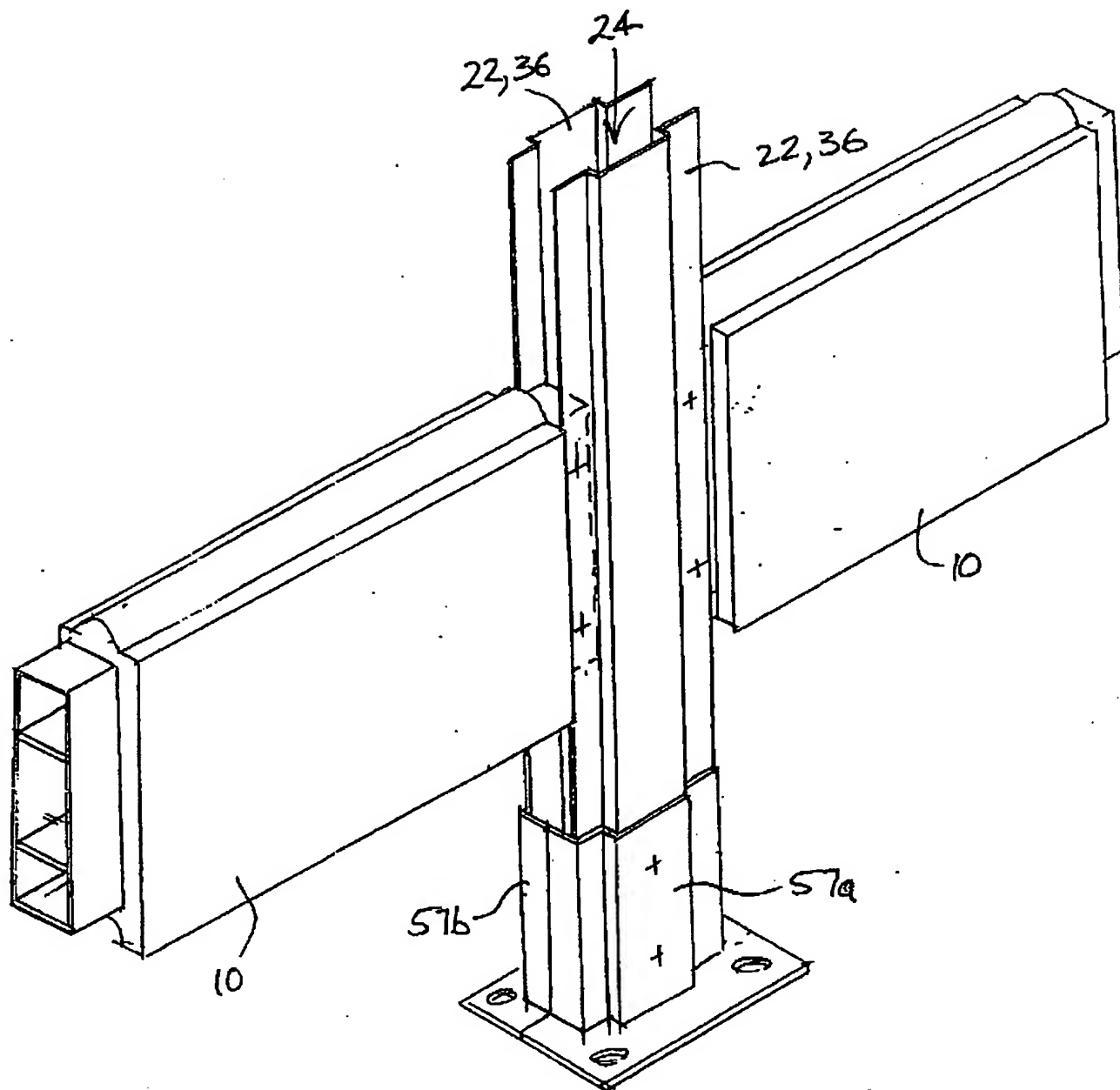


Fig. 11



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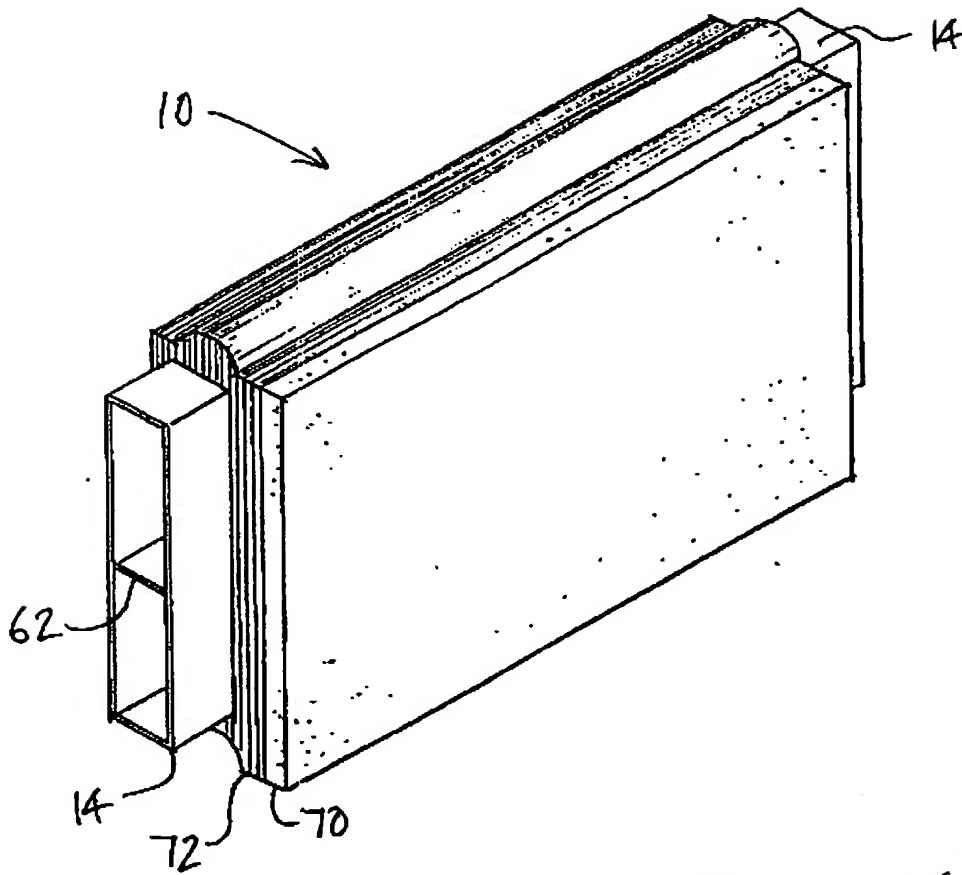


Fig. 12

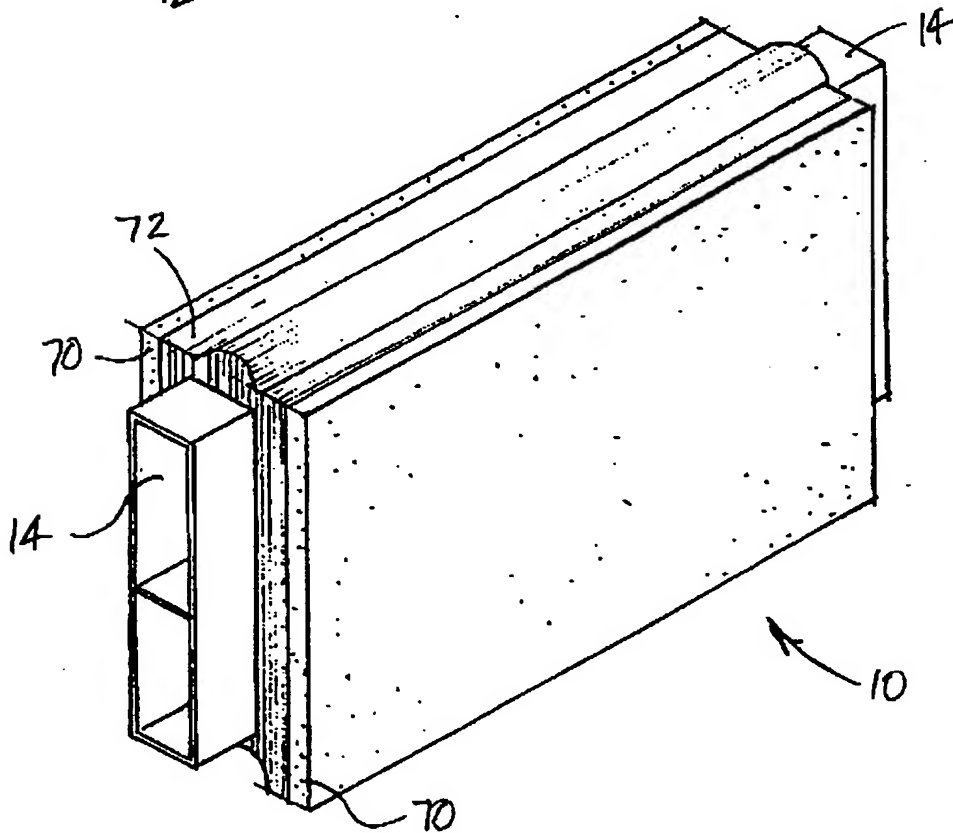


Fig. 13

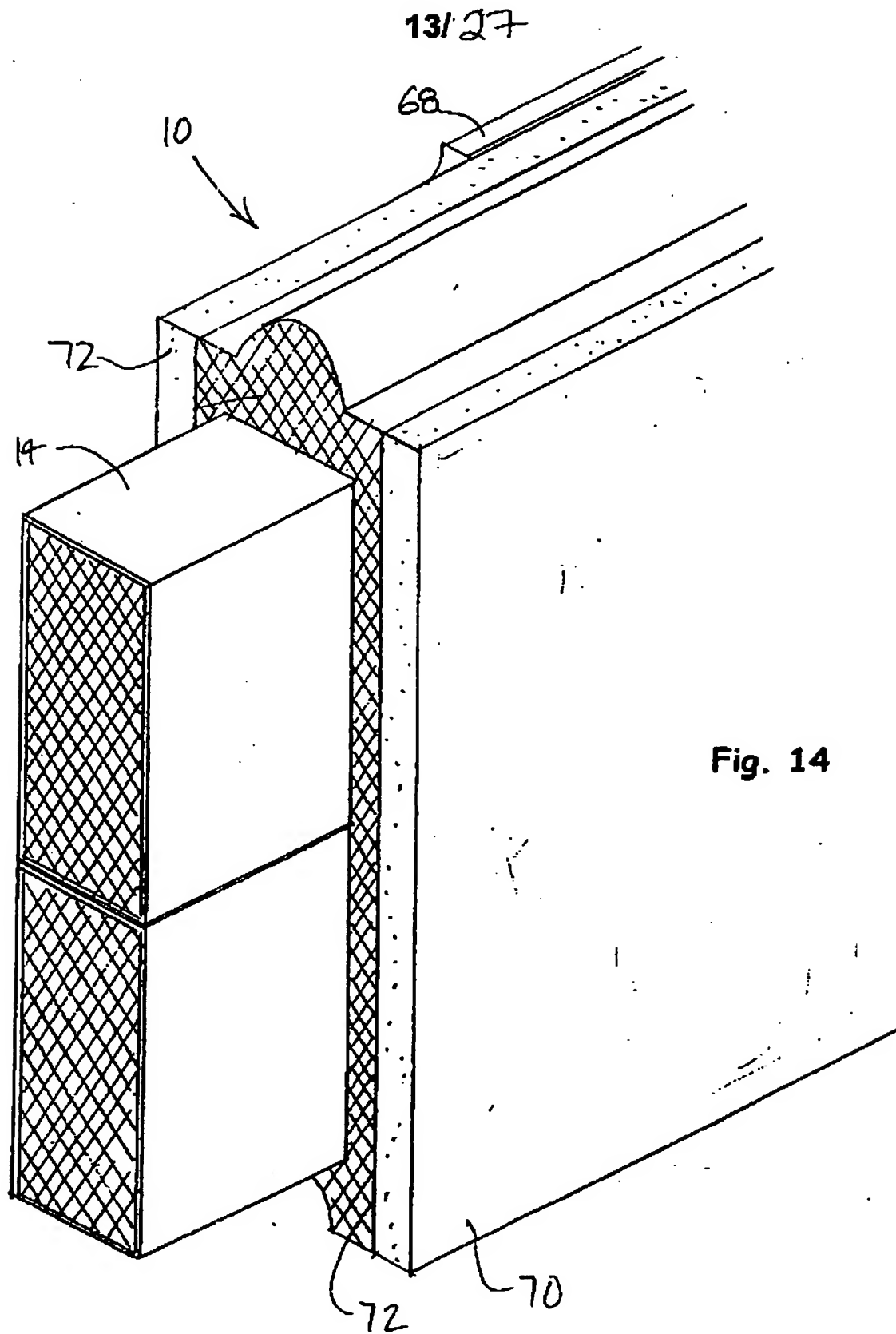


Fig. 14

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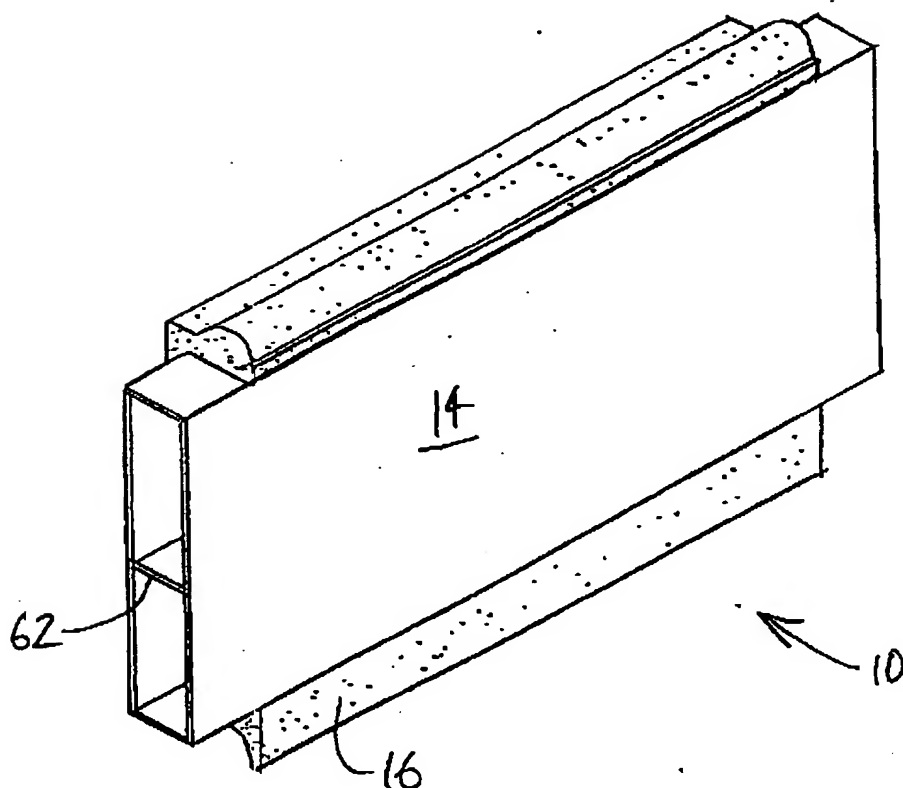


Fig. 15

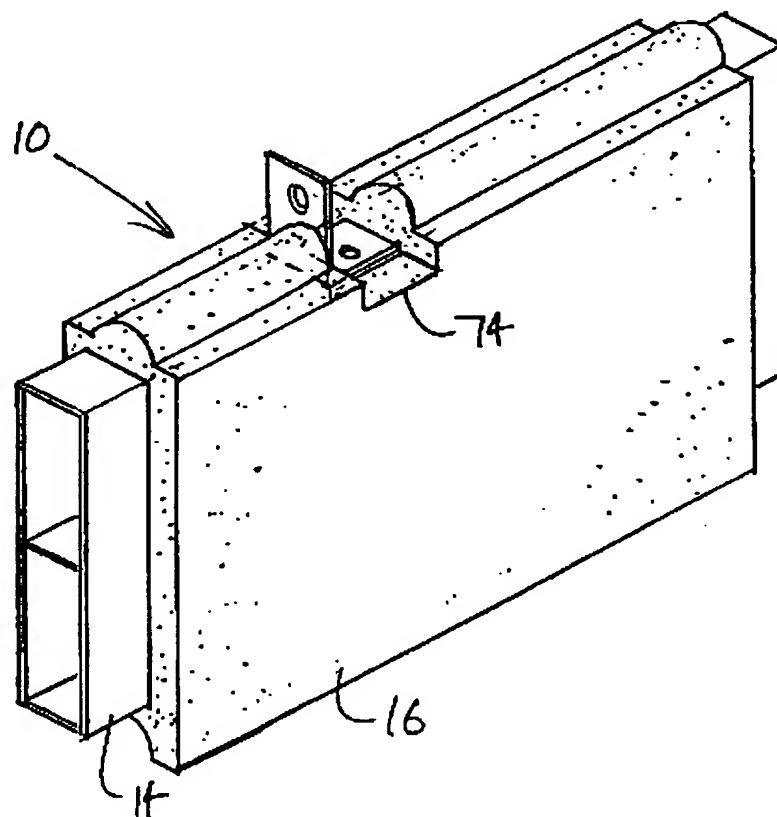


Fig. 16

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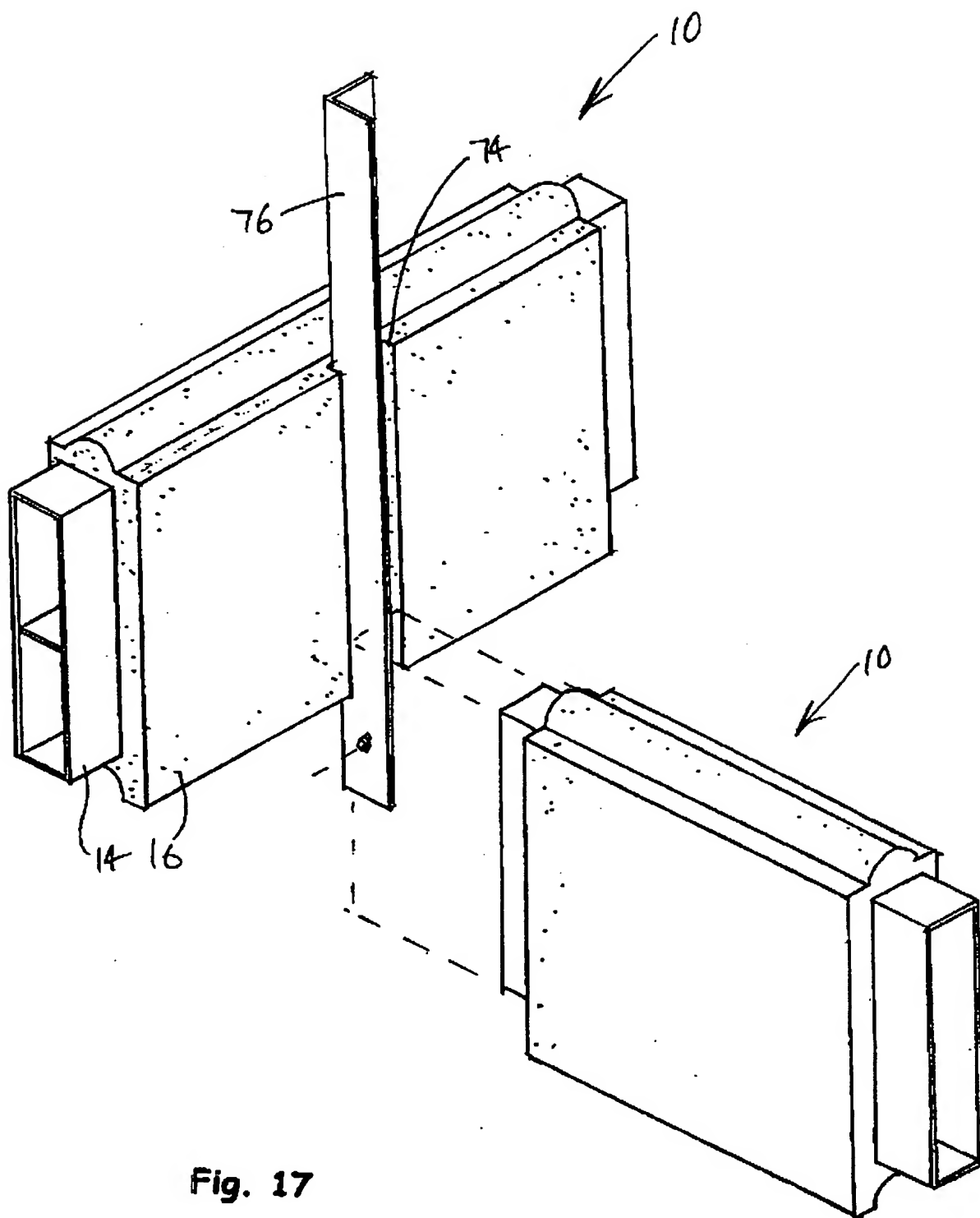


Fig. 17

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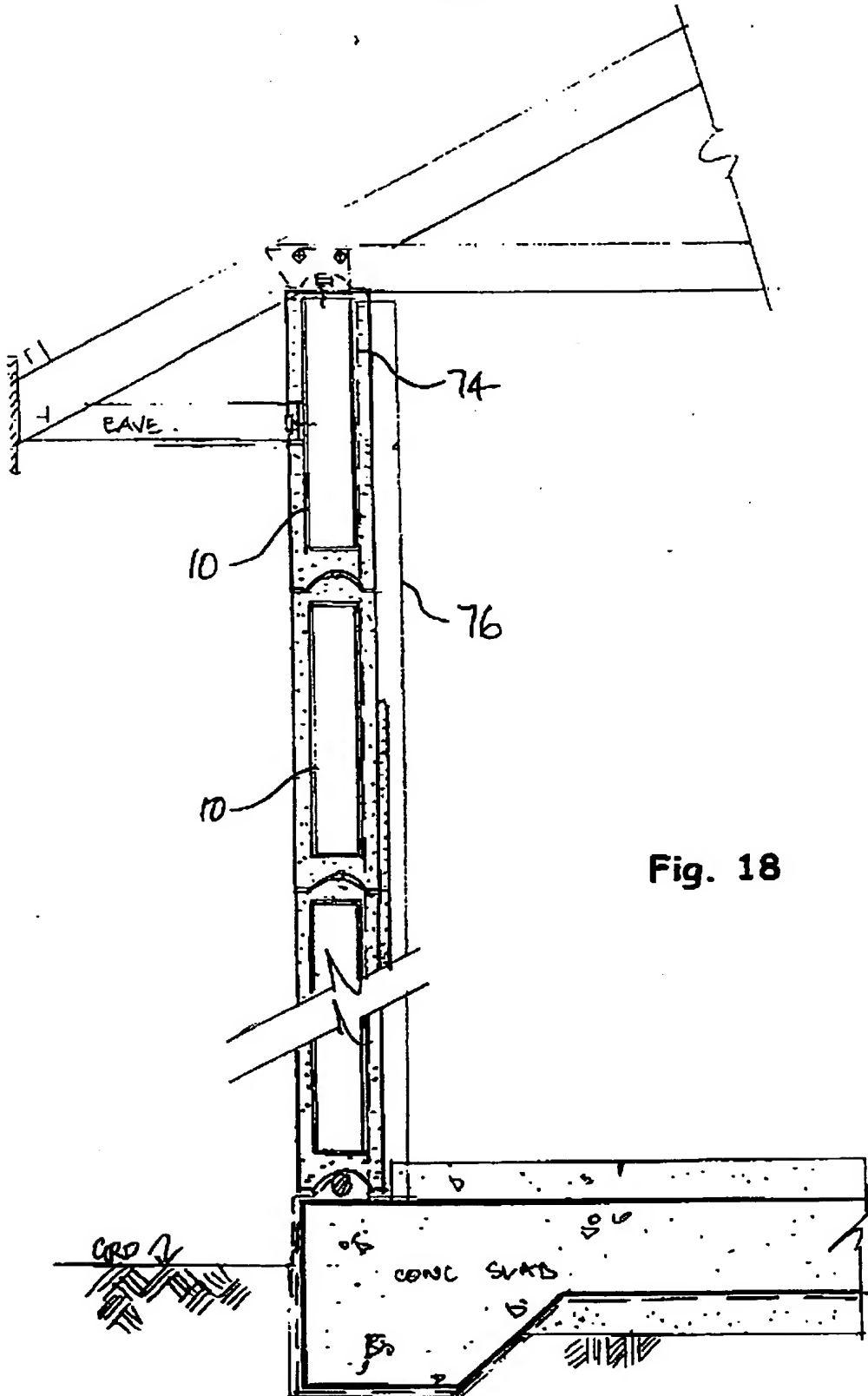


Fig. 18

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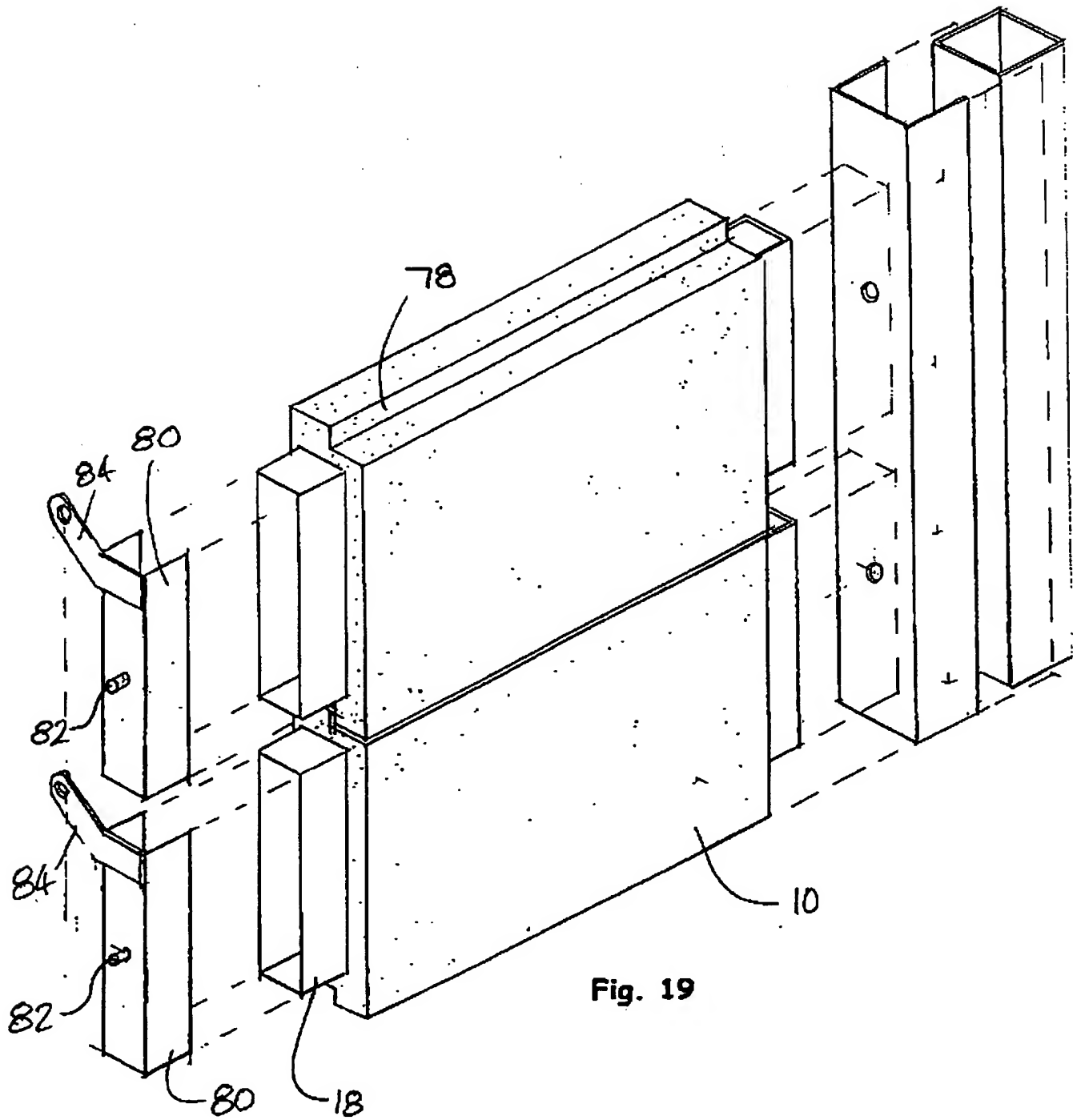


Fig. 19

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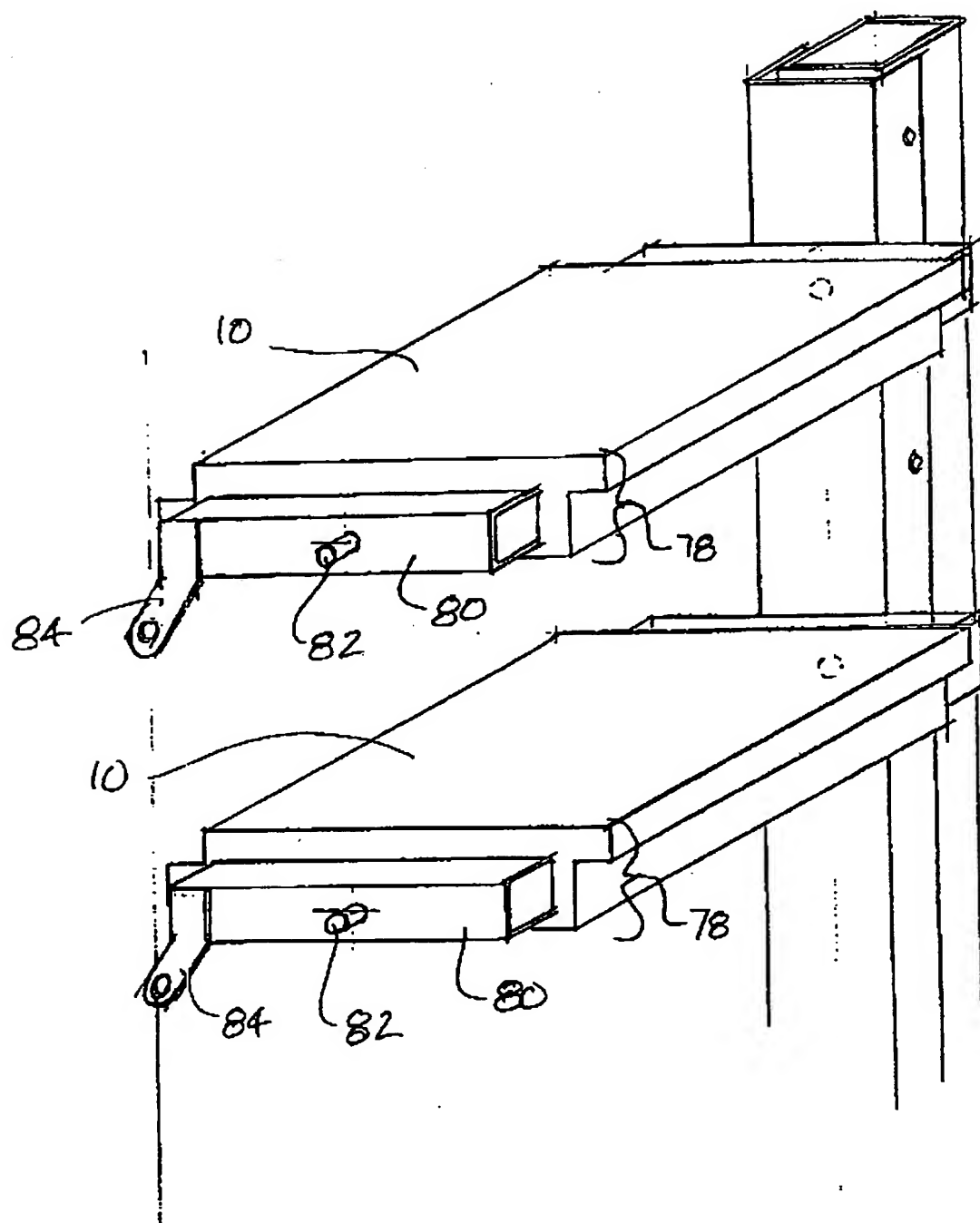


Fig. 20

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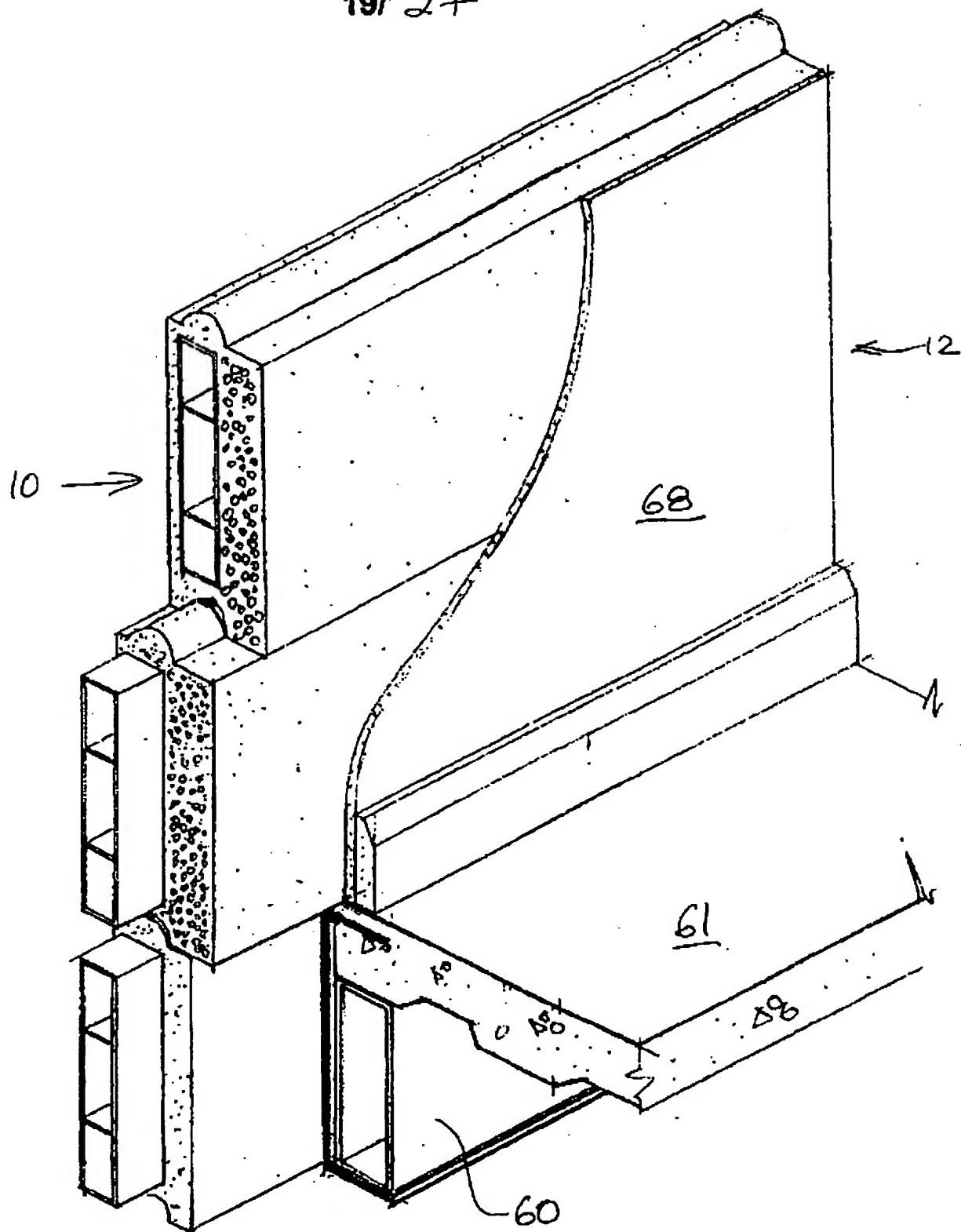


Fig. 21



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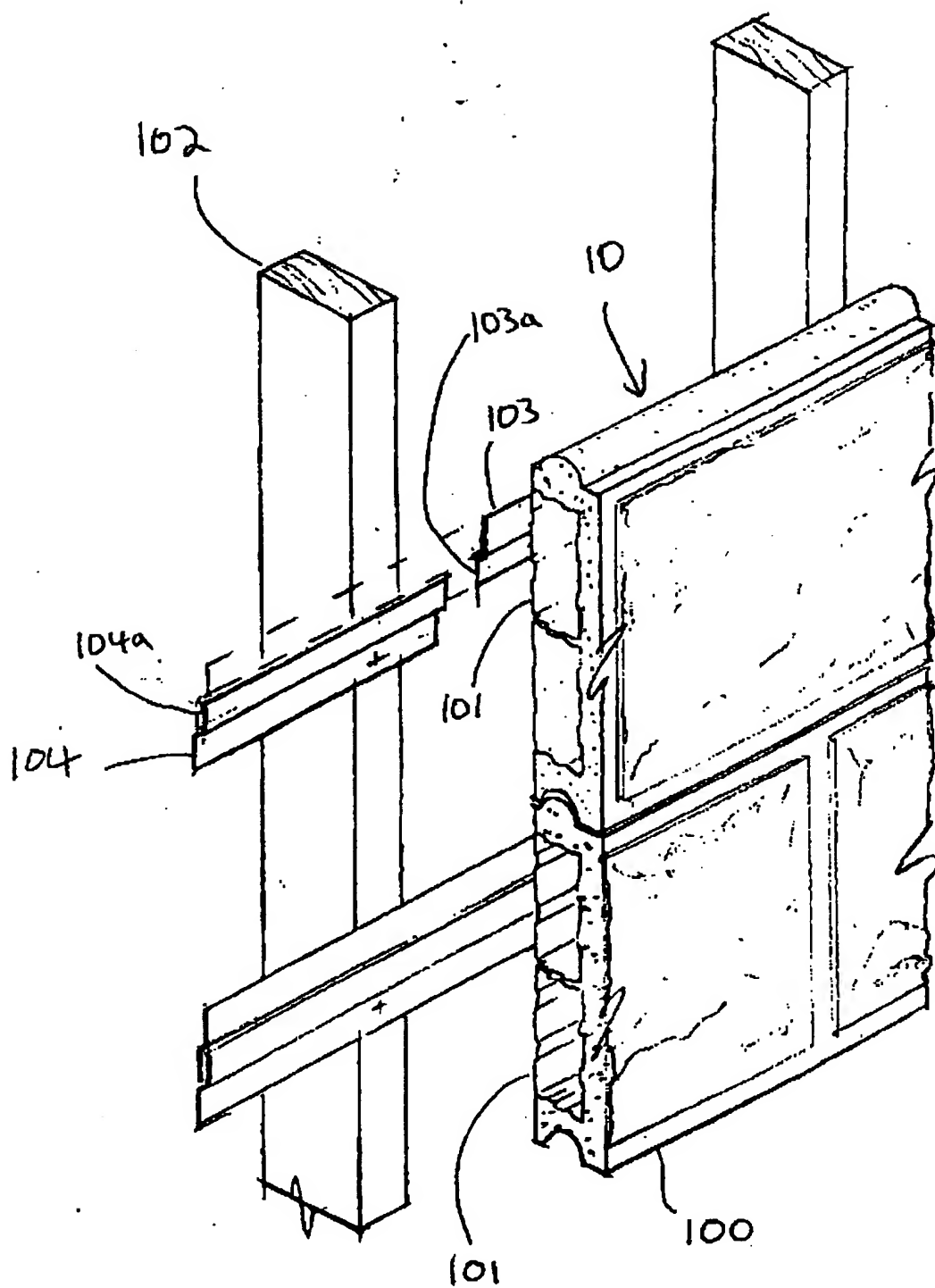


Fig 22

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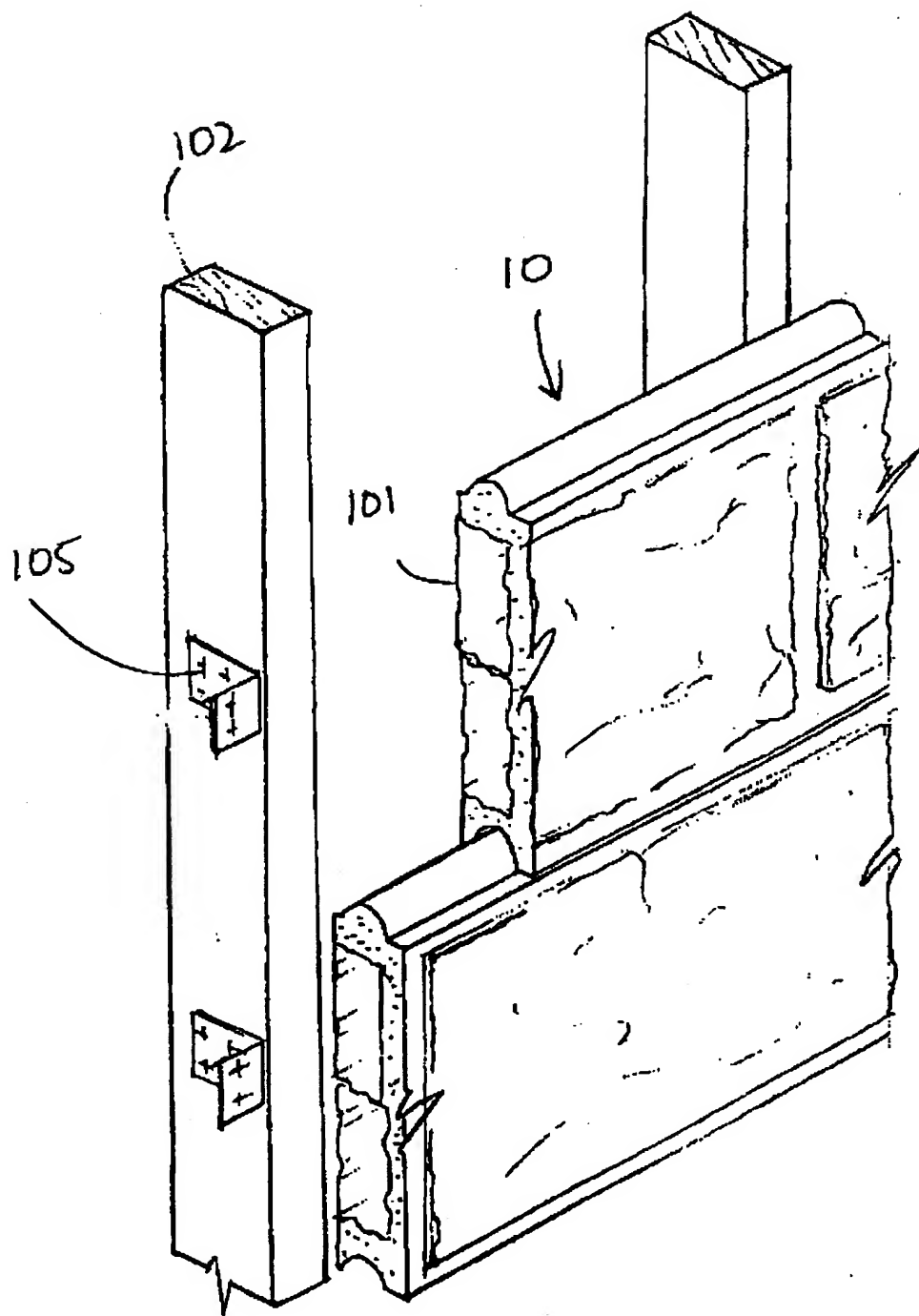


Fig 23

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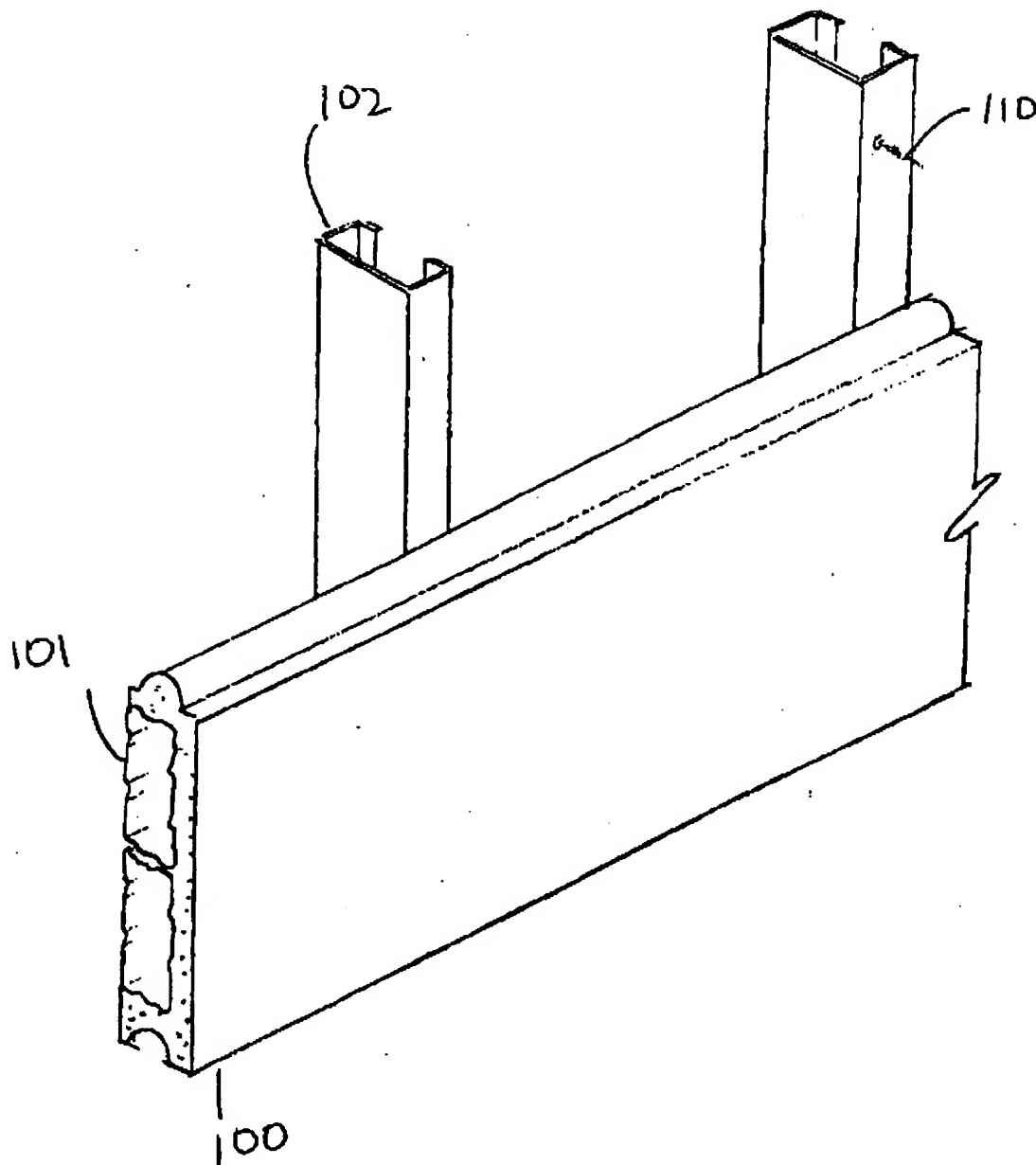


Fig 24

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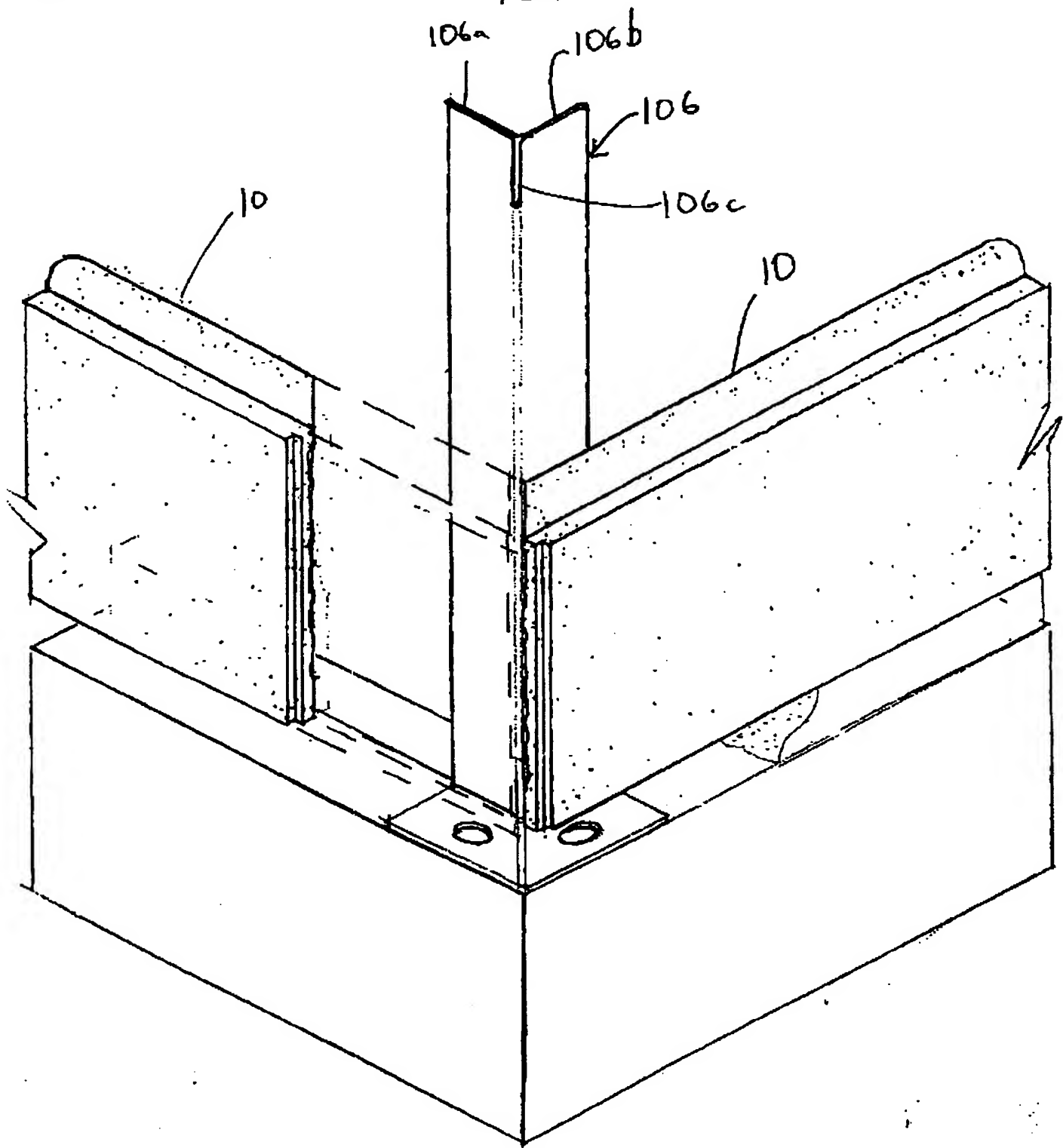


Fig 25

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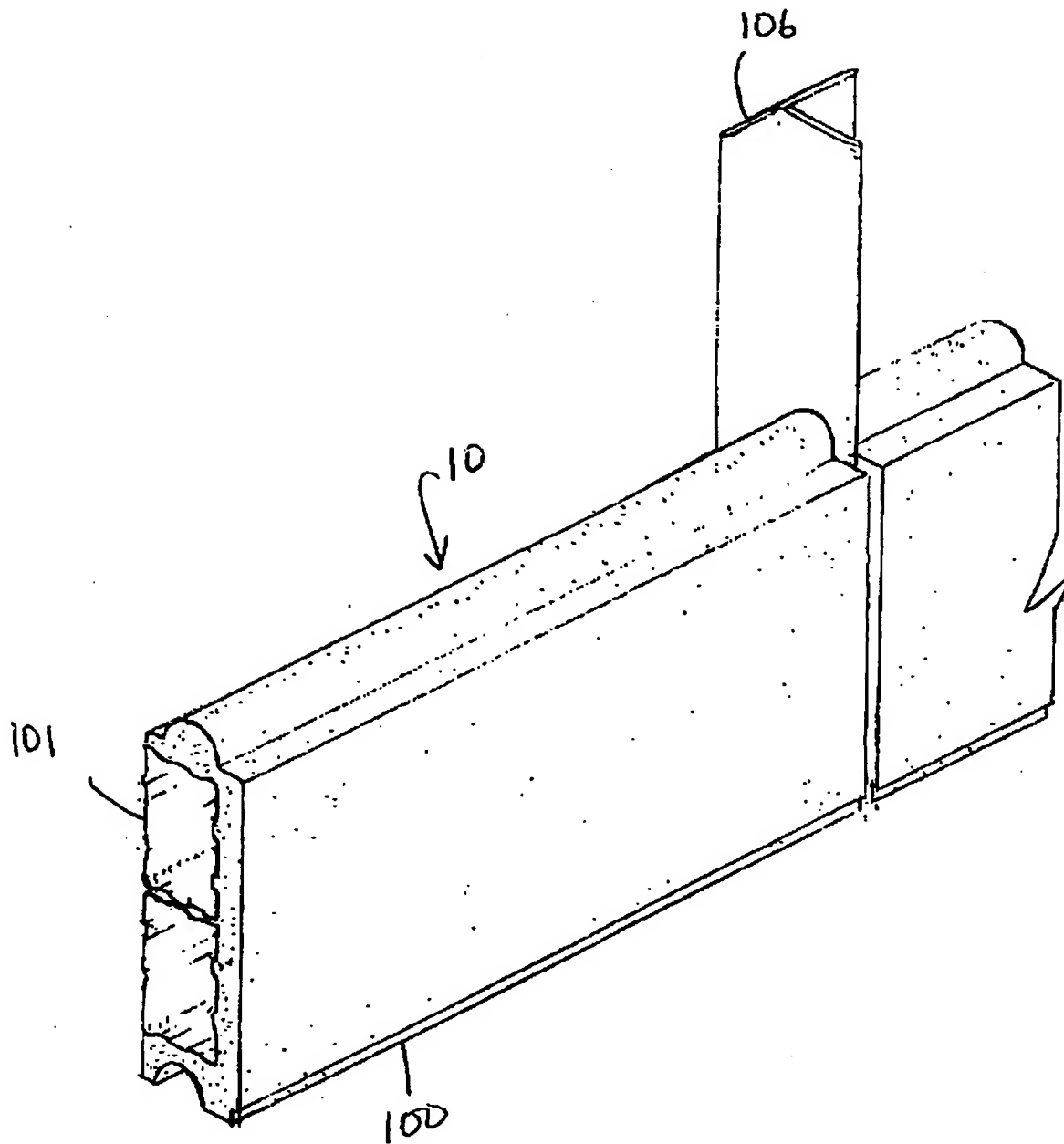
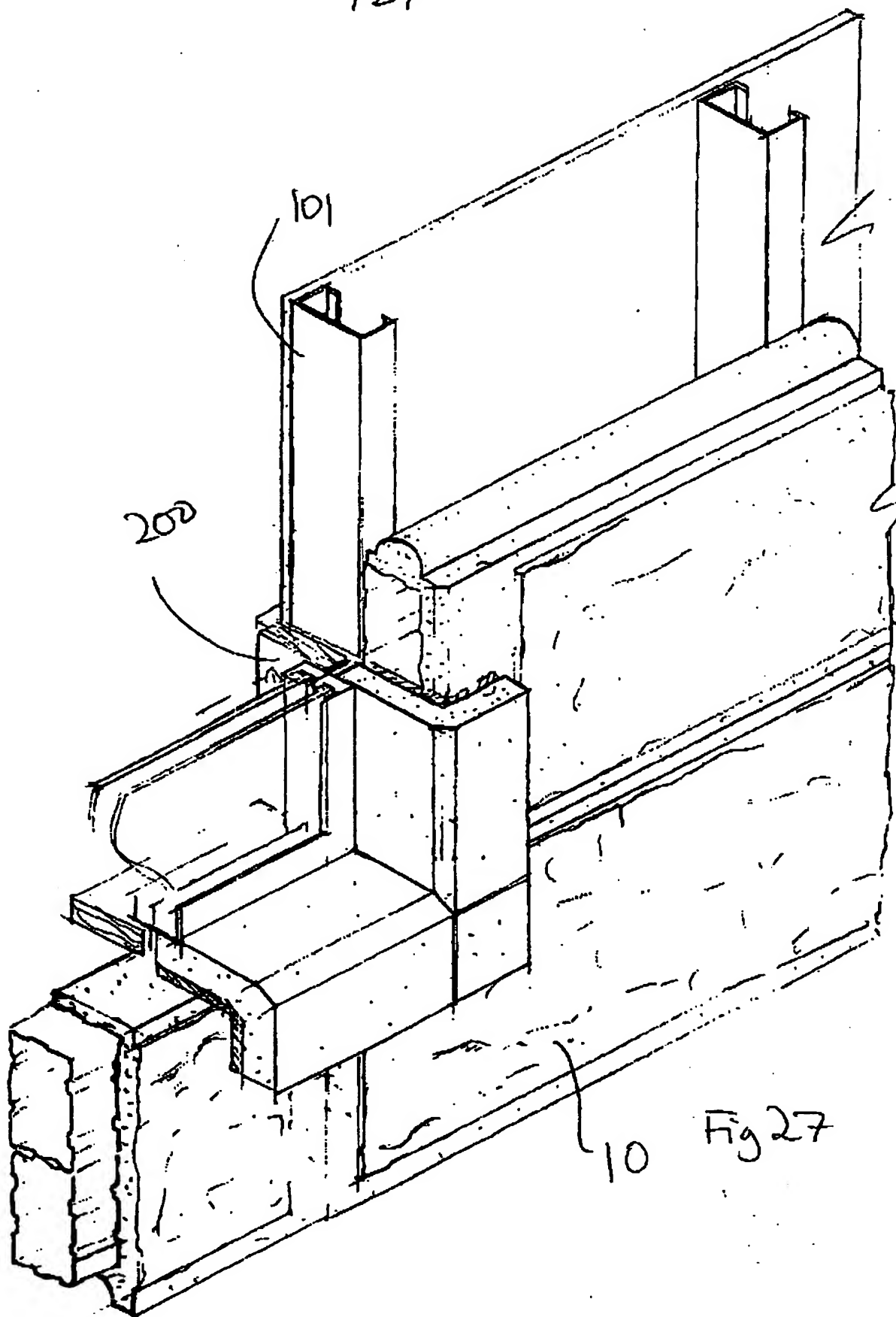


Fig 26

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9.



10 Fig 27

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7.

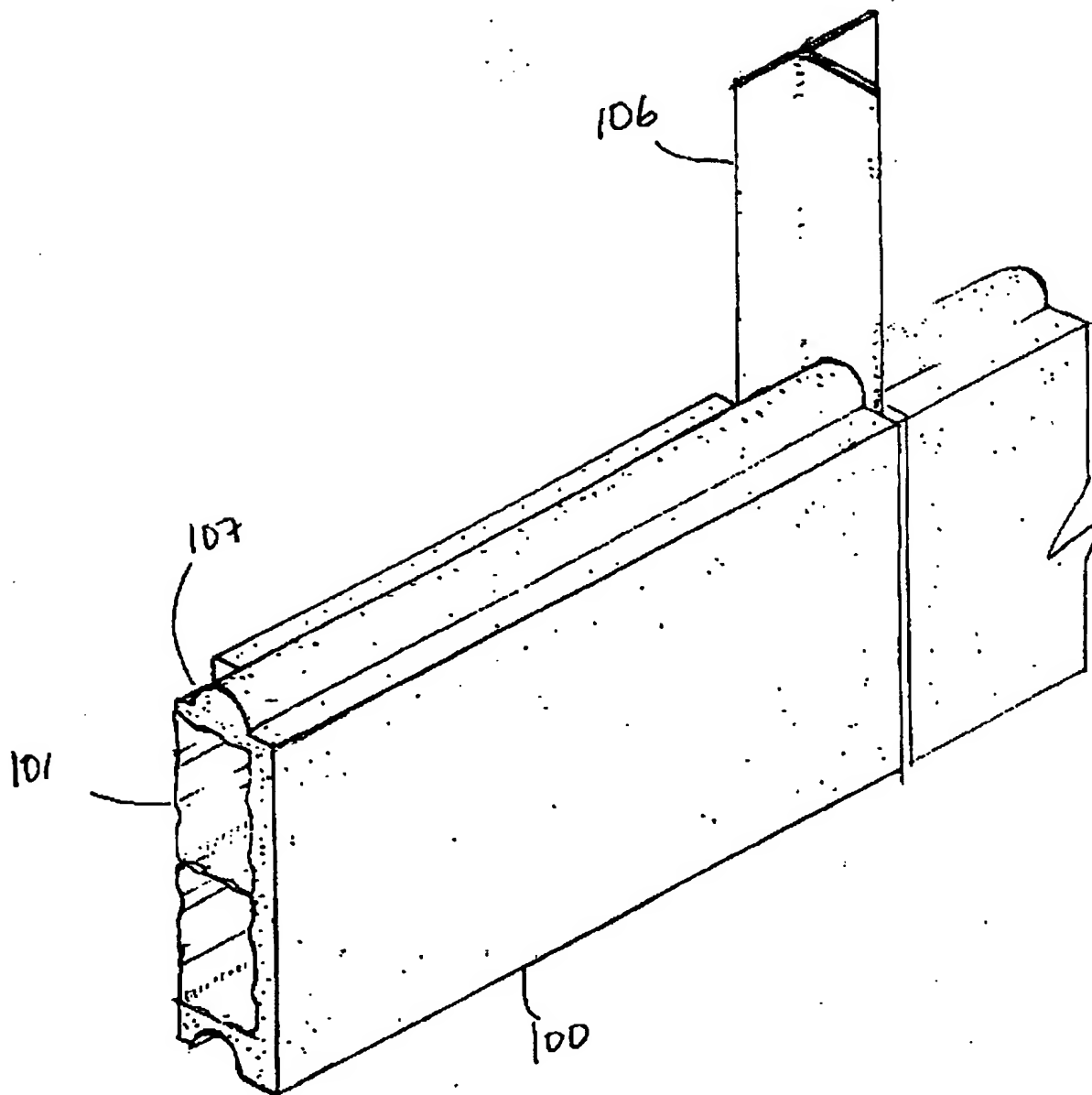


Fig 28

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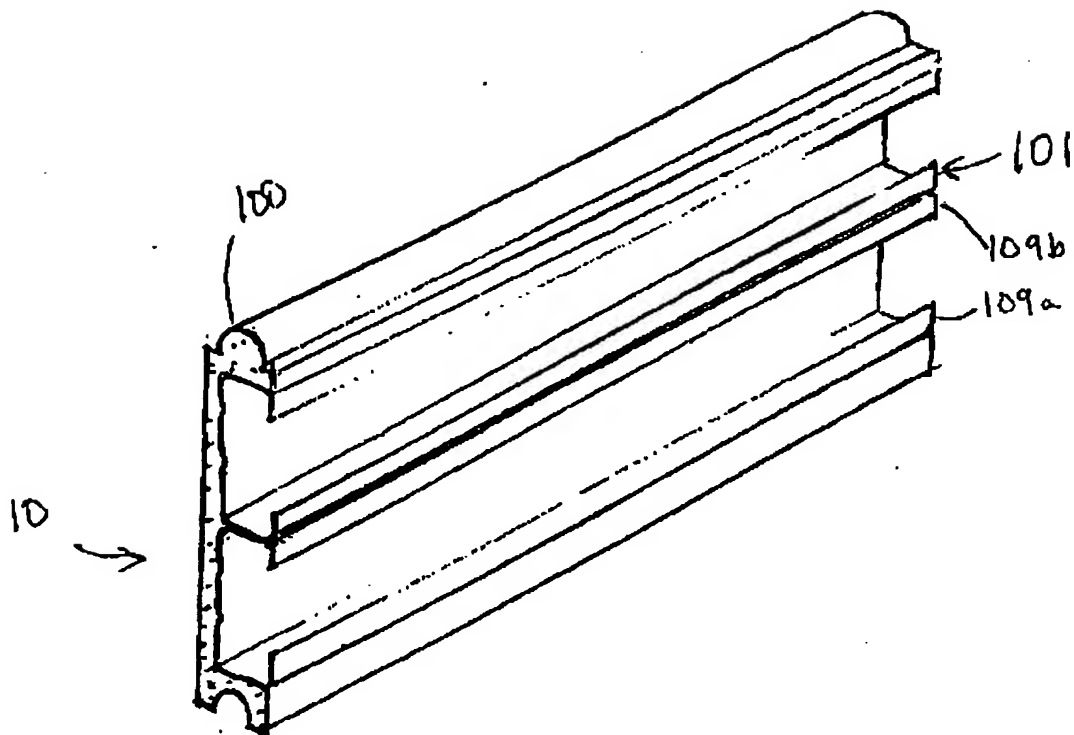


Fig 29